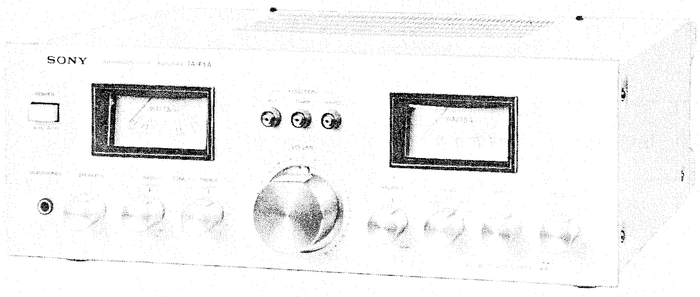
TA-F5A

AEP Model
UK Model
US Model
E Model



(AEP, UK, E model)

INTEGRATED STEREO AMPLIFIER

SPECIFICATIONS

GENERAL

Power Requirements:	220 V ac (or 110 V ac by internal rewiring), 50/60 Hz (AEP model) 240 V ac (or 120 V ac by internal rewiring), 50/60 Hz (UK model) 120 V ac, 60 Hz (US model) 110 V, 220 V ac, 50/60 Hz (E1 model) 120 V, 240 V ac, 50/60 Hz (E2 model)
Power Consumption:	270 W (AEP, E model) 360 W (UK model) 125 W (US model)
AC Outlets: (US model)	2 switched 100 W (at max.) 1 unswitched 50 W (at max.)
Dimensions:	Approx. 410 (w) x 145 (h) x 370 (d) mm $16\frac{3}{16}$ (w) x $5\frac{3}{4}$ (h) x $14\frac{5}{8}$ (d) inches (AEP, UK, E model) Approx. 435 (w) x 145 (h) x 370 (d) mm $17\frac{1}{8}$ (w) x $5\frac{3}{4}$ (h) x $14\frac{5}{8}$ (d) inches (US model) including projecting parts and controls
Weight:	Approx. 7.2 kg (15 lb 14 oz), net Approx. 9 kg (19 lb 14 oz), in shipping carton (AEP, UK, E model) Approx. 8.2 kg (18 lb 1 oz), net Approx. 10 kg (22 lb 1 oz), in shipping carton (US model)

AMPLIFIER SECTION

Continuous RMS Power Output: (Less than 0.04 % total harmonic distortion)	Both channels driven simultaneously At 20 – 20,000 Hz 70 + 70 W (8Ω) At 1 kHz 70 + 70 W (8Ω) According to DIN 45500 75 + 75 W (8Ω) (AEP, UK, E model)
Power Bandwidth: (AEP, UK, E model)	5 – 35,000 Hz, IHF
Harmonic Distortion:	Less than 0.04 % at rated output Less than 0.02 % at 10 W output
IM Distortion: (60 Hz : 7 kHz = 4 : 1)	Less than 0.01 % at rated output Less than 0.008 % at 10W output

– Continued on next page –

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY SHADING AND ⚠ MARK ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SONY®

SERVICE MANUAL

Frequency Response: PHONO RIAA equalization curve ± 0.2 dB

TUNER, AUX, TAPE 1, TAPE 2, REC/PB (AEP, UK, E model): 3–70,000 Hz $^{+0}_{-1}$ dB

Damping Factor: 40 (8Ω, 1 kHz)

Residual Noise: Less than 50 μV (8 Ω, Network A)

Tone Controls: BASS ± 10 dB at 60 Hz (TURNOVER FREQ 300 Hz)
TREBLE ± 10 dB at 25 kHz (TURNOVER FREQ 5 kHz)

Filters: LOW 6 dB/oct. below 15 Hz
HIGH 6 dB/oct. above 9 kHz

Inputs:

	Sensitivity	Impedance	Maximum Input Level (0.1% distortion)	S/N (weighting network, input level)
PHONO	2.5 mV	50 kΩ	250 mV	85 dB (A, 2.5 mV)
TUNER AUX TAPE 1 TAPE 2 REC/PB(AEP, UK, E model)	150 mV	50 kΩ	———	100 dB (A, 150 mV)

Outputs:

	Output Level	Impedance
REC OUT 1 REC OUT 2 (US model)	150 mV	4.7 kΩ
REC/PB (AEP, UK, E model)	22 mV	82 kΩ
HEADPHONES	Accepts low and high impedance headphones	
ER	Accepts speakers of 8–16 Ω (AEP, UK, E model) Accepts speakers of 4–16 Ω (US model)	

• MODEL IDENTIFICATION

– Specification Label –

AEP model

SONY®
INTEGRATED STEREO AMPLIFIER
MODEL NO. TA-F5A
AC 220 V ~ 50/60 Hz 270 W
SERIAL NO.
MADE IN JAPAN

UK model

SONY®
INTEGRATED STEREO AMPLIFIER
MODEL NO. TA-F5A
AC 240 V ~ 50/60 Hz 360 W
SERIAL NO.
MADE IN JAPAN

US model

SONY®
INTEGRATED STEREO AMPLIFIER
MODEL NO. TA-F5A
AC 120 V 60 Hz 125 W
SERIAL NO.
MADE IN JAPAN

E1 model

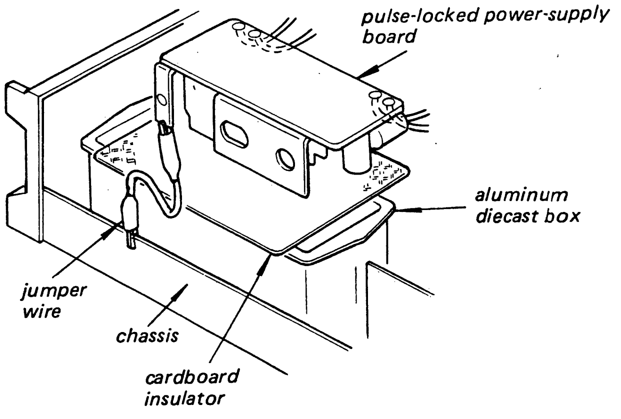
SONY®
INTEGRATED STEREO AMPLIFIER
MODEL NO. TA-F5A
AC 110, 220 V ~ 50/60 Hz 270 W
SERIAL NO.
MADE IN JAPAN

E2 model

SONY®
INTEGRATED STEREO AMPLIFIER
MODEL NO. TA-F5A
AC 120, 240 V ~ 50/60 Hz 270 W
SERIAL NO.
MADE IN JAPAN

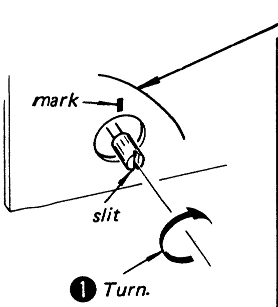
SERVICING NOTE

1. This set has a pulse-locked power-supply circuit which is quite different from a conventional power-supply circuit. The pulse-locked power supply directly rectifies and smooths the ac input power to produce the higher dc voltages required in the power supply circuit. When servicing this set, note the following.
   a) To prevent unwanted radiation due to pulse signals in the pulse-locked power-supply circuit, the pulse-locked power-supply board is shielded by the aluminum diecast box.
   b) The negative circuit of the secondary rectifier in the pulse-locked power-supply circuit is grounded by screws in the aluminum diecast box. When checking the pulse-locked power-supply board out of the box, use a jumperwire and a cardboard insulator as shown on the right.

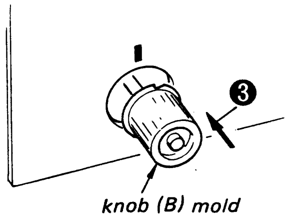

pulse-locked power-supply board
aluminum diecast box
jumper wire
chassis
cardboard insulator

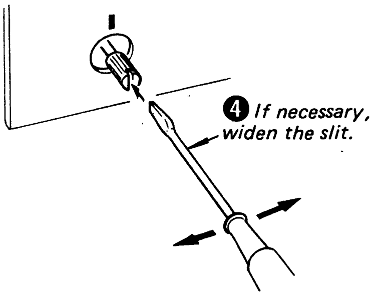
* * *

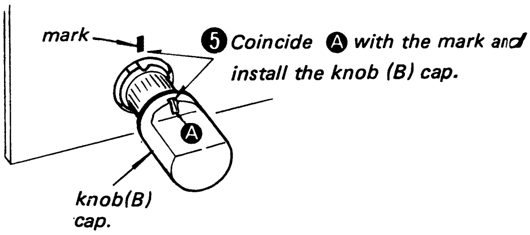
2. When replacing a knob (SPEAKERS/TREBLE/BASS / BALANCE / FILTER / TAPE COPY/MONITOR), prepare a knob(B) cap (4-854-266-00) and a knob (B) mold (4-854-267-00). Installation of the knob is as follows.


❷ Coincide a slit with a mark.
mark
slit
❶ Turn.

Knob	Mark Position
SPEAKERS	A
TREBLE	-10
BASS	-10
BALANCE	Center
FILTER	OFF
TAPE COPY	SOURCE
MONITOR	SOURCE


❸
knob (B) mold


❹ If necessary, widen the slit.


mark
❺ Coincide Ⓐ with the mark and install the knob (B) cap.
Ⓐ
knob(B) cap.

Part No.	*Description*
X-4854-213-1	Knob Ass'y
including;	
4-854-266-00	Cap, knob (B)
4-854-267-00	Mold, knob (B)

* * *

3. CAUTION

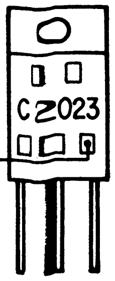
When replacing Q503 – Q506 in the pulse-locked power-supply circuit, use those which have the same hFE values.

- AEP, UK, E model

Q503–506 (8-729-302-31 2SC2023-R - - - R
Q503–506 (8-729-302-32 2SC2023-O - - - O

- US model

Q503–506 8-729-308-62 2SC1986C-O - - O



Note: R or O indicates the hFE value.

SECTION 1

OUTLINE

1-1 CIRCUIT DESCRIPTION

In the power supply section of conventional audio equipment, ac input power is usually changed in voltage by a transformer and rectified to obtain a dc voltage. The disadvantages of this are as follows;

1. Voltage regulation is poor.
2. Hum in the output results if large filter are not used.
3. High-power output can not be obtained without a very large transformer.

To eliminate these problems, the pulse-locked power supply is used in this set. In the power supply, after a dc voltage is obtained by rectifying the ac input power, a 20 kHz pulse signal is generated in the inverter. The pulse signal is converted to the desired-voltage signal by a high-frequency transformer which has a small ferrite-core, and then rectified to produce dc voltages.

Fig. 1 shows the block diagram of the pulse-locked power supply. This power supply has the following advantages;

1. The source impedance can be made smaller so better voltage regulation (less than 7%) can be obtained.
2. Square waves as high in frequency as 20 kHz are used, so hum does not occur.
3. Efficiency is very high, since the dc resistance of the high-frequency transformer is small and a high-efficiency inverter is used.
4. This power supply consists of small components that result in a very small size and a light weight. This power supply is half the size and less than one quarter the weight of a conventional power supply.

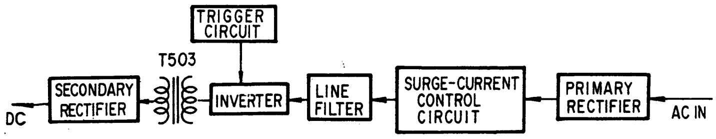

TRIGGER CIRCUIT
T503
SECONDARY RECTIFIER
DC
INVERTER
LINE FILTER
SURGE-CURRENT CONTROL CIRCUIT
PRIMARY RECTIFIER
AC IN

Fig. 1

1. SURGE-CURRENT CONTROL CIRCUIT (See Fig. 2)

Since the pulse-locked power supply directly rectifies ac power input, if S6 (POWER) is set to ON without a surge-current control circuit, a large surge-current charging C313 and C314 will flow and damage S6 (POWER).

To prevent this, the parallel combination of R601 to R603 are added in series with S6 (POWER) to control the rush-current. The resistors are shorted by RY601 after dc voltage appears in the secondary rectifier circuit.

2. LINE FILTER (See Fig. 2)

To eliminate the high-frequency ripple component produced in the inverter, a line filter is installed. The line filter consists of C501 to C503. L501 is a bifilar RF choke having a ferrite toroidal core.

AEP, UK, E model

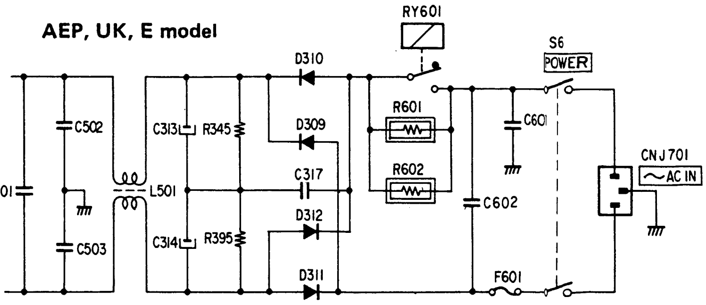

RY601
D310
S6
POWER
R601
C502
C313
R345
D309
C601
CNJ701
AC IN
C317
R602
C501
L501
C602
D312
C314
R395
C503
D311
F601

Fig. 2

3. INVERTER TRIGGER CIRCUIT (See Fig. 3.)

Setting S6 (POWER) to ON is not sufficient to start the inverter oscillating; a trigger signal is also required for inverter oscillation. The operation is as follows;

1) When S6 (POWER) is set to ON, current ① charges C506.
2) When the voltage between the base and emitter of Q502 becomes more than 0.6 V, Q502 and Q501 turn on.
3) C506 discharges and current ② flows, causing the inverter to start to oscillate.
4) After the start of the oscillation, the voltage appearing at the winding N2 of T503 is rectified by D501 and D502 and charges C505. As a result, Q502 and Q501 turn off so that the load on the N1 winding of T501 is reduced and the inverter operates normally, maintaining oscillation.

4. INVERTER CIRCUIT

The inverter consists of four transistors and generates a square-wave signal of about 20 kHz.

Fig. 4. shows the principle of the inverter. By turning Sl and S4, or S2 and S3 on and off, the square-wave signal shown in Fig. 5 is generated at the secondary side of T503. In short, dc current is changed to a square-wave signal by switching action.

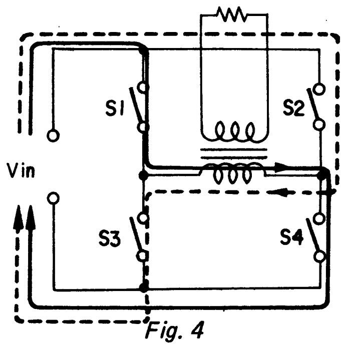

S1
S2
S3
S4
Vin

Fig. 4

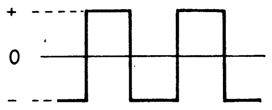
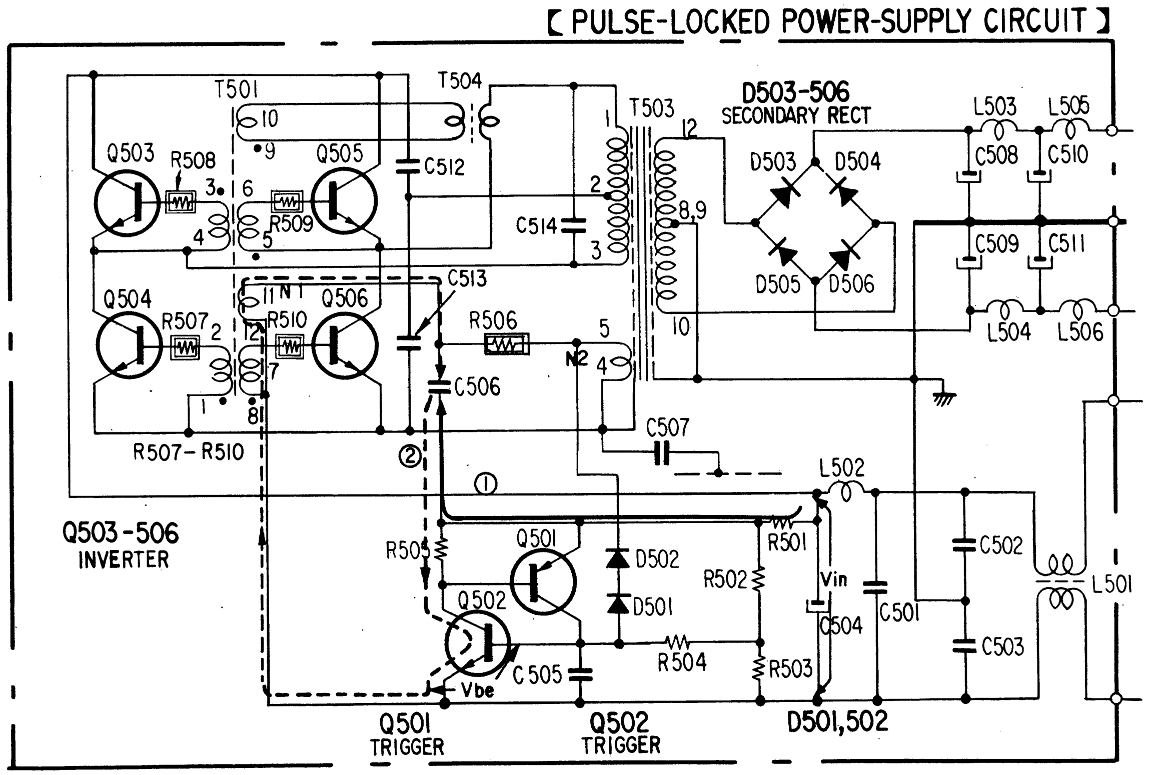


Fig. 5


[PULSE-LOCKED POWER-SUPPLY CIRCUIT]
T501
T504
T503
D503-506
SECONDARY RECT
L503
L505
Q503
R508
Q505
C512
D503
D504
C508
C510
C514
C509
C511
R509
Q504
C513
Q506
D505
D506
R507
R510
R506
L504
L506
N2
C506
C507
R507-R510
②
①
L502
Q503-506
INVERTER
R505
Q501
D502
R501
C502
R502
Vin
L501
Q502
D501
C504
C501
C503
R504
R503
C505
Vbe
Q501
TRIGGER
Q502
TRIGGER
D501,502

N3 and N6 are wound in the same direction as N1.
N4, N5 and N9 are wound in the opposite direction of N1.

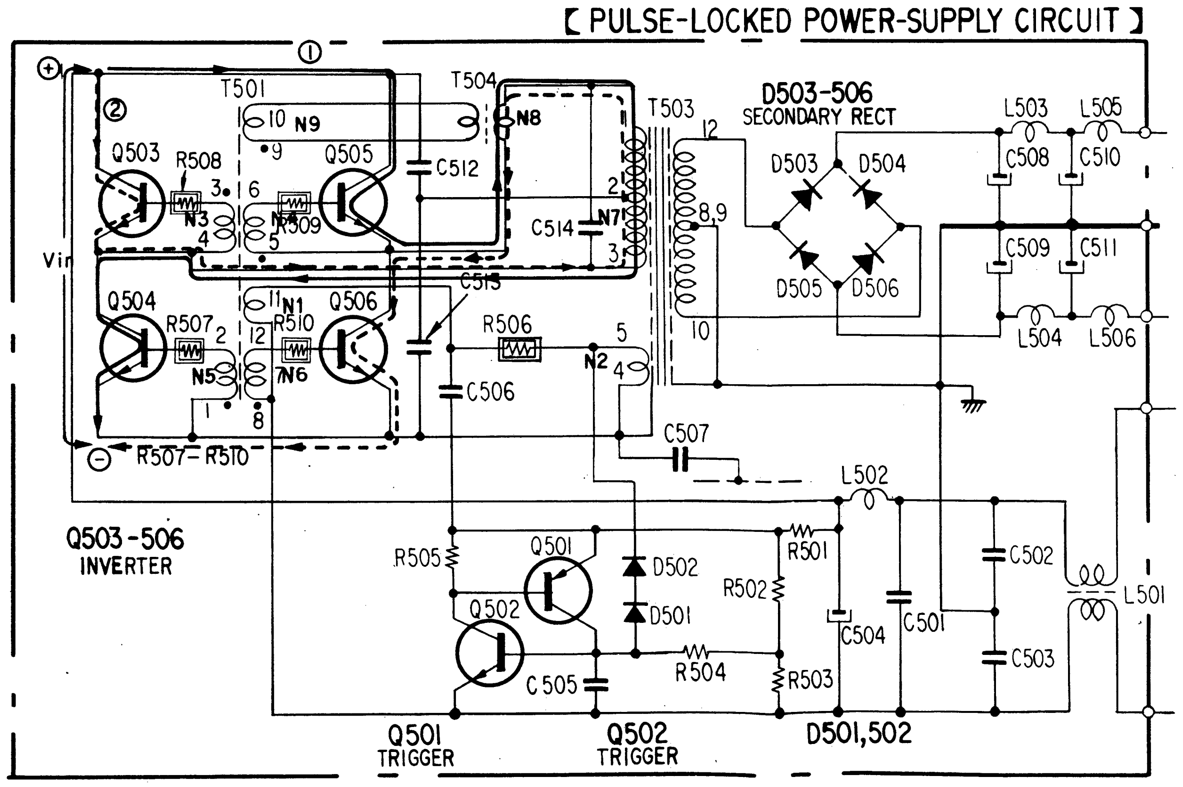
Fig. 3

The details are as follows (See Fig. 6.);

1) A trigger signal is generated at winding N1 by the trigger circuit.
2) We assume that Q504 and Q505 are turned on by current ① which is induced by the trigger signal.
3) At this time, an induced current flows through winding N9 and generates voltages at windings N4 and N5. These voltages keep Q504 and Q505 on. This is a current feedback.
4) At the same time, an induced current flows through winding N2 of T503 and generates voltages at windings N4 and N5. These voltages also keep Q504 and Q505 on. This is a voltage feedback.
5) The current and voltage feedbacks keep Q504 and Q505 on and send power to T503. After a while, T501 becomes saturated and stops generating the voltages that keep Q504 and Q505 on.
6) Q504 and Q505 then turn off, and a voltage which is opposite in polarity to the former voltage appears at winding N2.
7) This voltage induces current ②, and turns Q503 and Q506 on.
8) After a while, Q503 and Q506 turn off and Q504 and Q505 turn on, again.
9) In this way, a square-wave signal is obtained at the secondary side of T503.

5. SECONDARY RECTIFIER

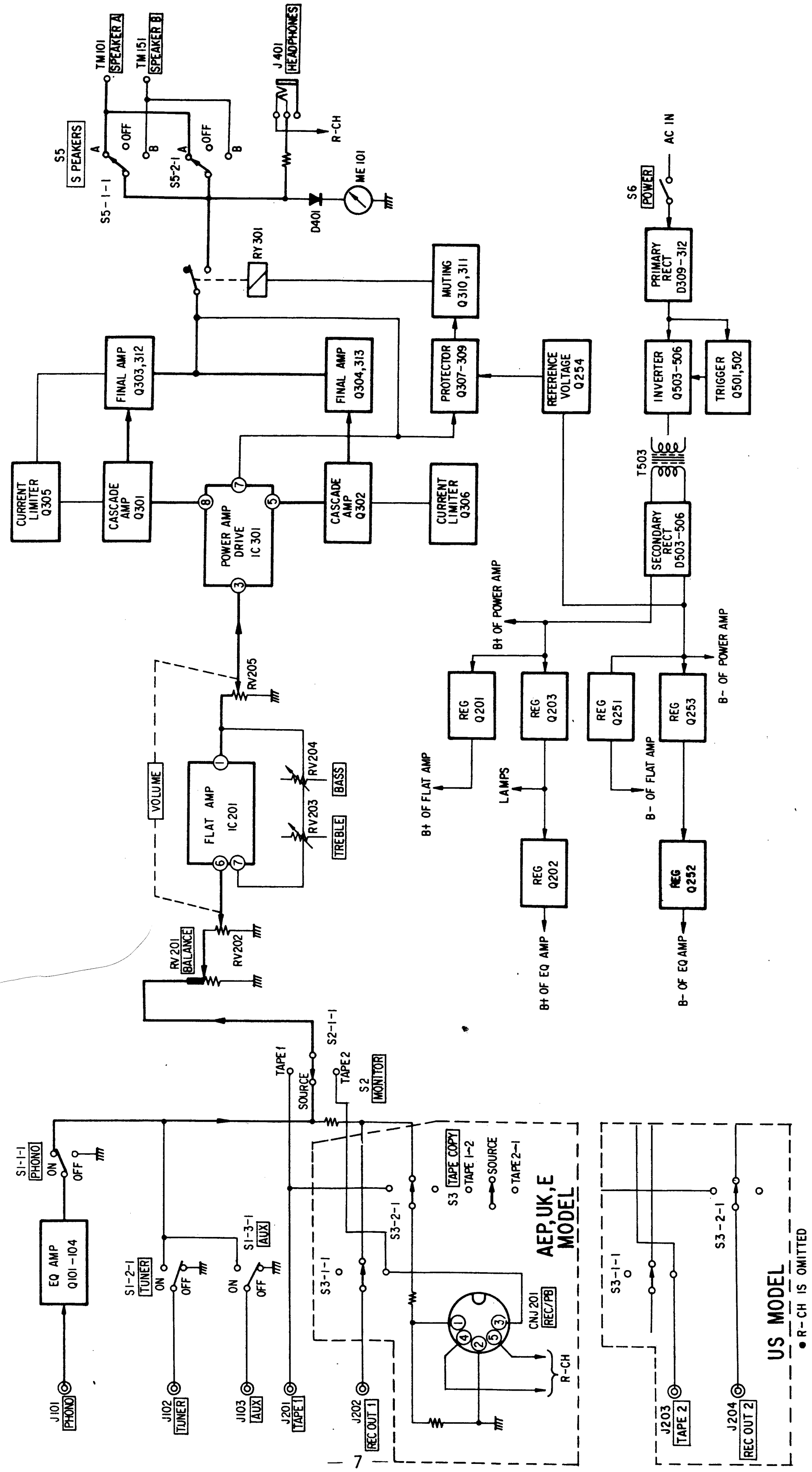
The secondary rectifier converts the square-wave into dc. This consists of D503 to D506, L503 to L506 and C508 to C511. S34-type diodes (high-speed switching diodes) are used to reduce power loss.


[PULSE-LOCKED POWER-SUPPLY CIRCUIT]
⊕
①
②
T501
N9
T504
N8
T503
D503-506
SECONDARY RECT
L503
L505
Q503
R508
Q505
C512
D503
D504
C508
C510
N3
N7
C514
C509
C511
R509
Vin
Q504
N1
Q506
C513
D505
D506
R507
R510
R506
L504
L506
N5
N6
N2
C506
⊖
R507-R510
C507
L502
Q503-506
INVERTER
R505
Q501
D502
R501
C502
R502
L501
Q502
D501
C504
C501
C503
C505
R504
R503
Q501
TRIGGER
Q502
TRIGGER
D501,502

N3 and N6 are wound in the same direction as N1.
N4, N5 and N9 are wound in the opposite direction of N1.

Fig. 6

1-2. BLOCK DIAGRAM


TM101 SPEAKER A
TM151 SPEAKER B
J401 HEADPHONES
R-CH
S5 S PEAKERS
S5-1-1
S5-2-1
OFF
A
B
ME101
D401
RY301
AC IN
S6 POWER
PRIMARY RECT D309-312
MUTING Q310,311
FINAL AMP Q303,312
FINAL AMP Q304,313
PROTECTOR Q307-309
REFERENCE VOLTAGE Q254
INVERTER Q503-506
TRIGGER Q501,502
T503
CURRENT LIMITER Q305
CASCADE AMP Q301
POWER AMP DRIVE IC301
CASCADE AMP Q302
CURRENT LIMITER Q306
SECONDARY RECT D503-506
B+ OF POWER AMP
B- OF POWER AMP
RV205
REG Q201
REG Q203
REG Q251
REG Q253
B+ OF FLAT AMP
LAMPS
B- OF FLAT AMP
VOLUME
FLAT AMP IC201
RV204 BASS
RV203 TREBLE
REG Q202
REG Q252
B+ OF EQ AMP
B- OF EQ AMP
RV201 BALANCE
RV202
TAPE1
SOURCE
TAPE2
S2-1-1
S2 MONITOR
S1-1-1 PHONO
ON
OFF
EQ AMP Q101-104
S1-2-1 TUNER
S1-3-1 AUX
S3 TAPE COPY
TAPE 1-2
SOURCE
TAPE2-1
S3-1-1
S3-2-1
AEP,UK,E MODEL
CNJ201 REC/PB
R-CH
US MODEL
• R-CH IS OMITTED
J101 PHONO
J102 TUNER
J103 AUX
J201 TAPE 1
J202 REC OUT 1
J203 TAPE 2
J204 REC OUT 2

SECTION 2

DISASSEMBLY

- Follow the disassembly procedure in the numerical order given.

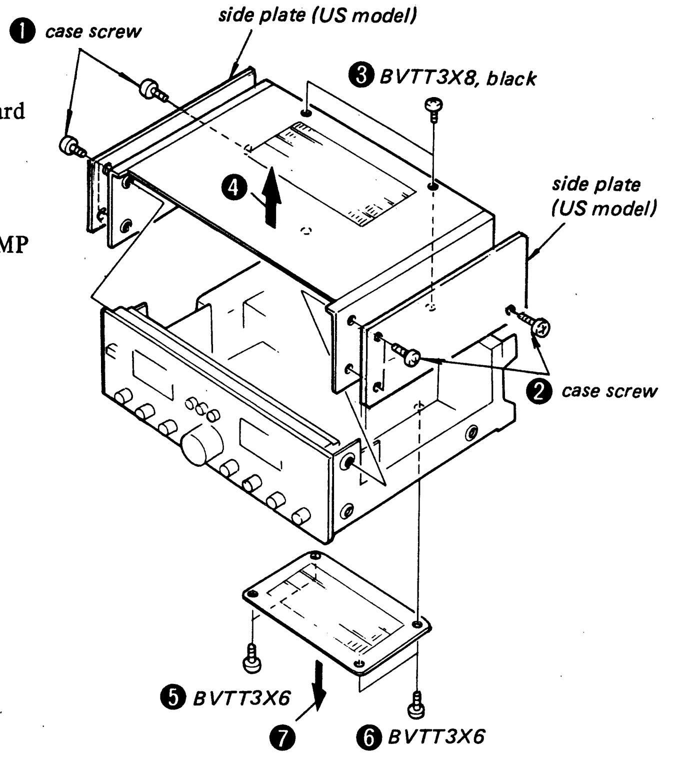
【CASE AND BOTTOM PLATE REMOVAL】

Case: ❶ to ❹

The component side of the EQ AMP board can be checked.

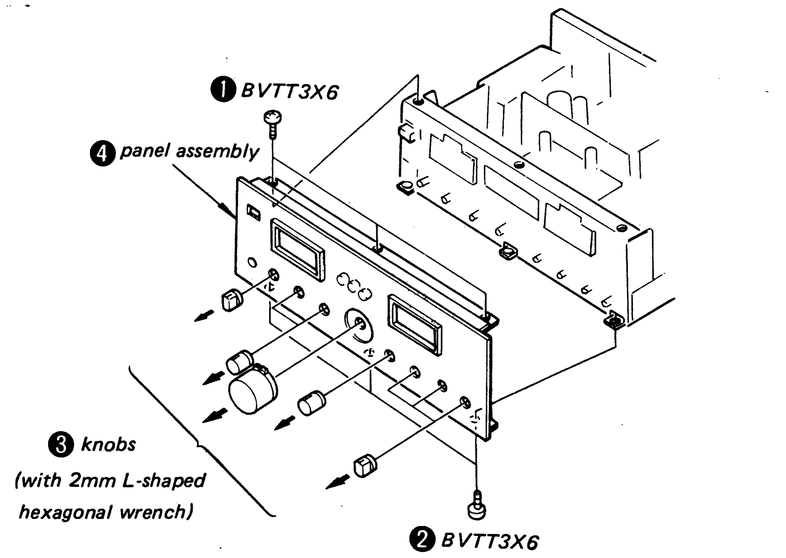
Bottom Plate: ❺ to ❼

The conductor side of the POWER AMP board can be checked.

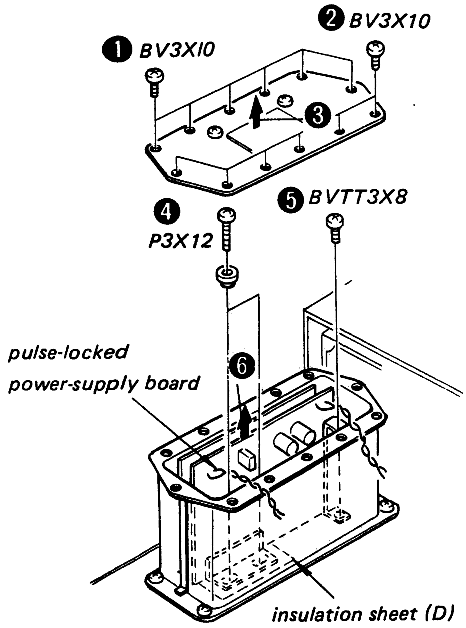

❶ case screw
side plate (US model)
❸ BVTT3X8, black
❹
side plate (US model)
❷ case screw
❺ BVTT3X6
❼
❻ BVTT3X6

【PANEL ASSEMBLY REMOVAL】

After removing the panel assembly, the S6 (POWER), EQ AMP board and FLAT AMP board can be removed.

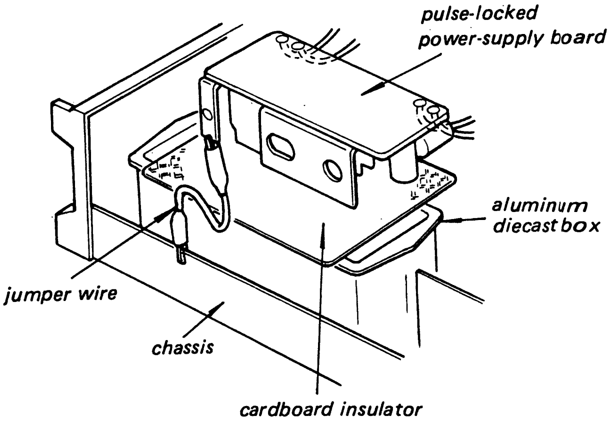

❶ BVTT3X6
❹ panel assembly
❸ knobs
(with 2mm L-shaped hexagonal wrench)
❷ BVTT3X6

【PULSE-LOCKED POWER-SUPPLY BOARD REMOVAL】

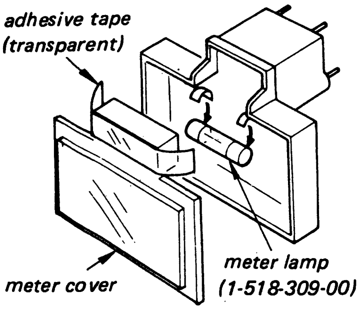

❶ BV3X10
❷ BV3X10
❸
❹ P3X12
❺ BVTT3X8
❻
pulse-locked power-supply board
insulation sheet (D)

CAUTION

The negative circuit of the secondary rectifier in the pulse-locked power-supply circuit is grounded by screws in the aluminum diecast box. When checking the pulse-locked power-supply board out of the box, use a jumper wire and a cardboard insulator as shown below.


pulse-locked power-supply board
aluminum diecast box
jumper wire
chassis
cardboard insulator

【METER LAMP REPLACEMENT】

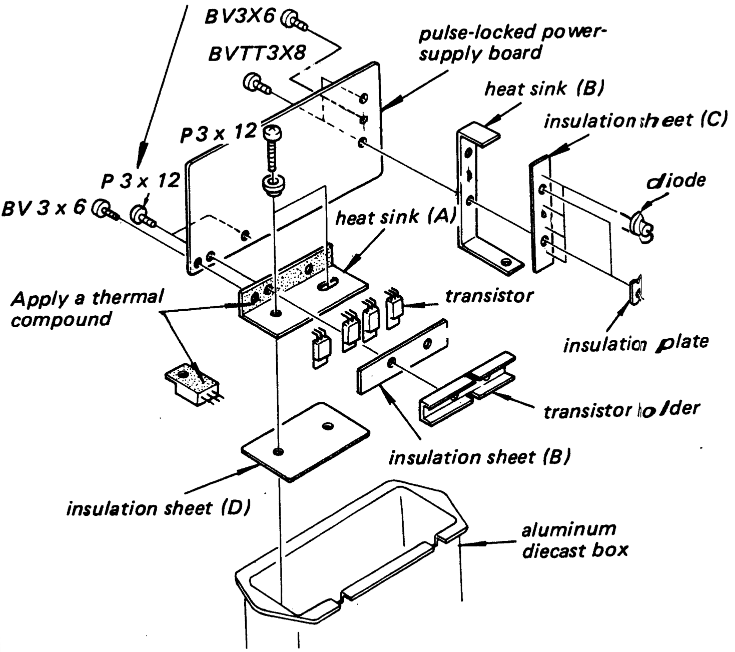

adhesive tape (transparent)
meter cover
meter lamp (1-518-309-00)

Note:

To obtain the same brightness of meter lamps, replace both lamps (L-CH and R-CH) together with new ones.

Exploded view (Refer this when installing the pulse-locked power-supply board.)

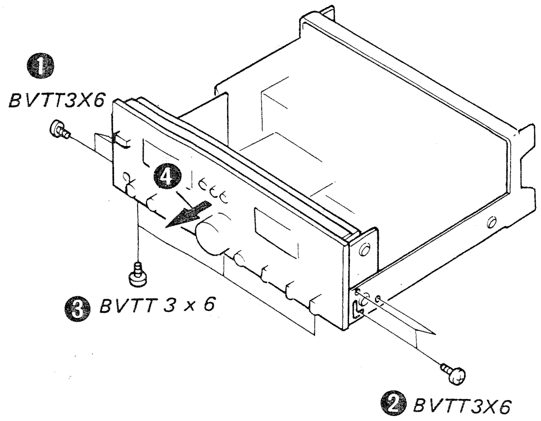
(Secure these screws so that four transistors are held properly.)

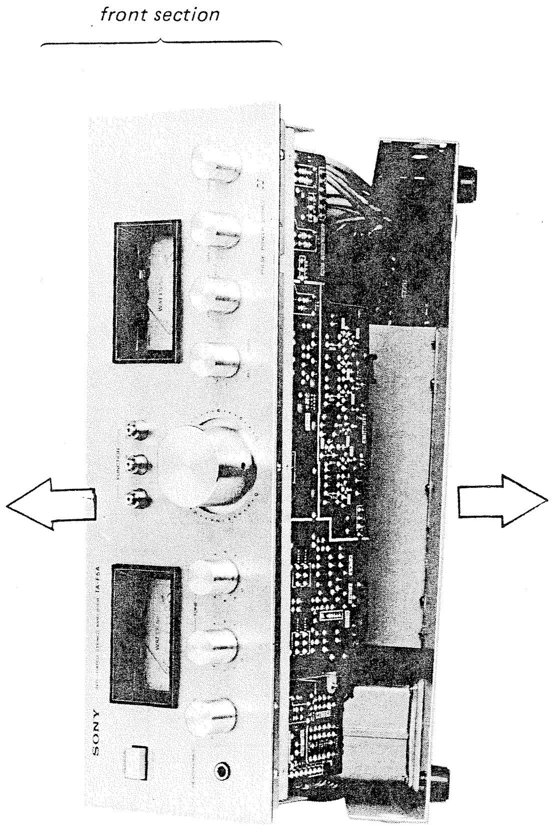

BV3X6
BVTT3X8
pulse-locked power-supply board
heat sink (B)
insulation sheet (C)
P 3 x 12
P 3 x 12
diode
BV 3 x 6
heat sink (A)
Apply a thermal compound
transistor
insulation plate
transistor holder
insulation sheet (B)
insulation sheet (D)
aluminum diecast box

Note:
- If a insulation sheet is injured or torn, change it.
- Confirm that there are no scraps of solder or lead wire on any insulation sheet.

【FLAT AMP BOARD CHECKING AND SERVICING】

The FLAT AMP board and EQ AMP board on the front section can be separated from the chassis.


❶ BVTT3X6
❹
❸ BVTT 3 x 6
❷ BVTT3X6


front section
SONY

SECTION 3

ELECTRICAL ADJUSTMENTS

Note:

1. DC BIAS and DC BALANCE adjustments should be performed several minutes after the set becomes stable (S6: POWER is set to ON.).
2. Perform first DC BIAS adjustment.
3. Repeat DC BIAS and DC BALANCE adjustments two or three times.
4. After servicing or changing the power transistors, DC BIAS and DC BALANCE adjustments should be performed.

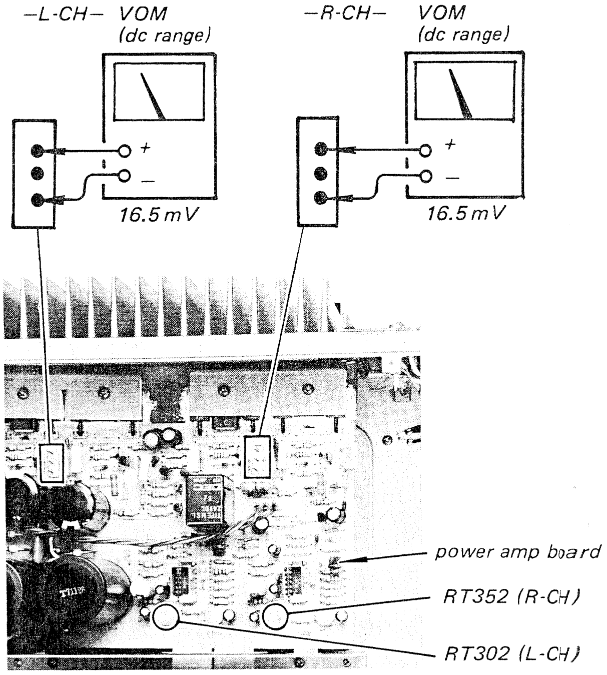
DC Bias Adjustment

Procedure:

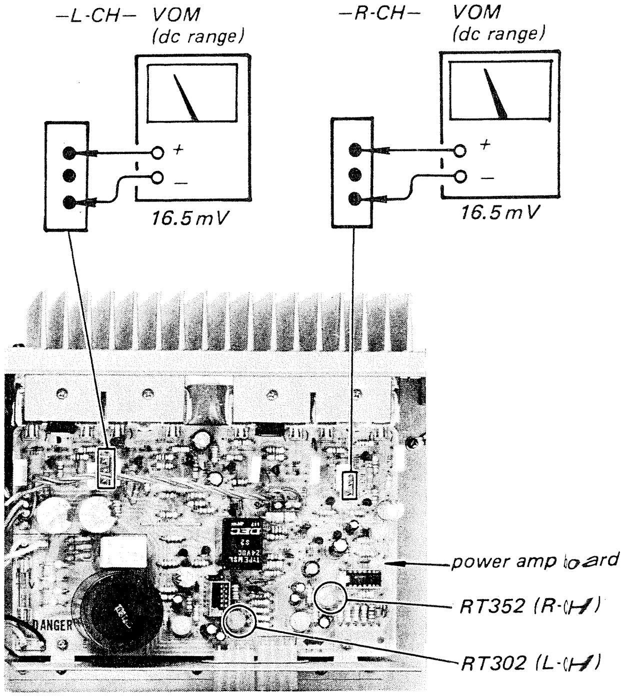
Adjust RT302 (L-CH) and RT352 (R-CH) for 16.5 mV readings.

Adjustment Location:

AEP, UK, E model


–L-CH– VOM
(dc range)
+
–
16.5mV
–R-CH– VOM
(dc range)
+
–
16.5mV
power amp board
RT352 (R-CH)
RT302 (L-CH)

US model


–L-CH– VOM
(dc range)
+
–
16.5mV
–R-CH– VOM
(dc range)
+
–
16.5mV
DANGER
power amp board
RT352 (R-CH)
RT302 (L-CH)

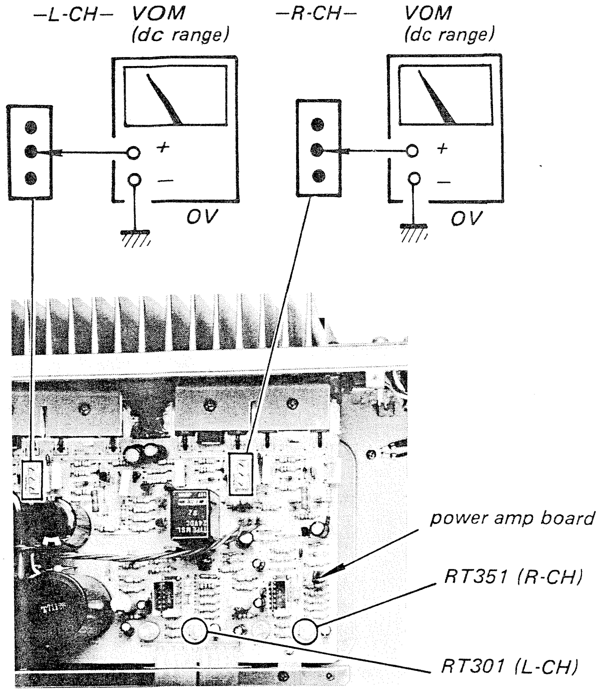
DC Balance Adjustment

Procedure:

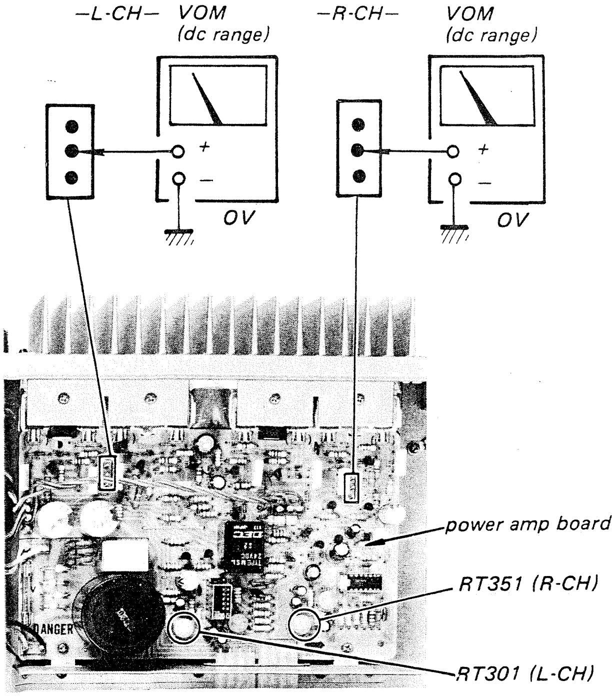
Adjust RT301 (L-CH) and RT351 (R-CH) for 0V readings.

Adjustment Location:

AEP, UK, E model


-L-CH-
VOM
(dc range)
+
–
OV
-R-CH-
VOM
(dc range)
+
–
OV
power amp board
RT351 (R-CH)
RT301 (L-CH)

US model

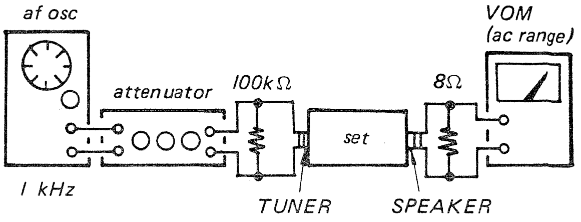

-L-CH-
VOM
(dc range)
+
–
OV
-R-CH-
VOM
(dc range)
+
–
OV
power amp board
RT351 (R-CH)
RT301 (L-CH)

Meter Level Adjustment

Setting:

FUNCTION switch: TUNER

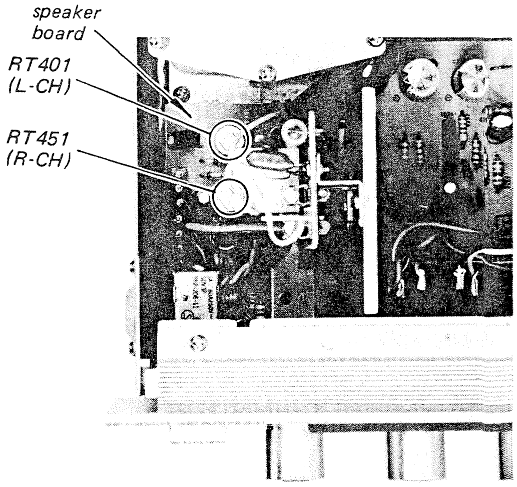
Procedure:


af osc
1 kHz
attenuator
100kΩ
set
8Ω
VOM
(ac range)
TUNER
SPEAKER

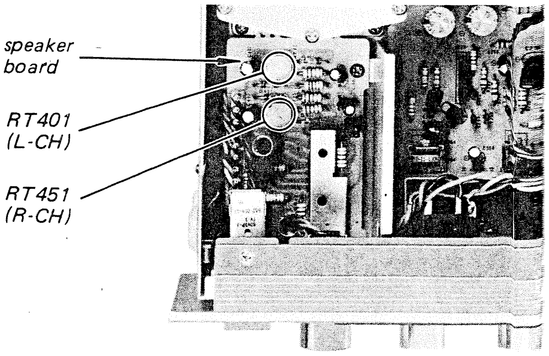
1. Turn the VOLUME control fully clockwise.
2. Adjust the TUNER input level for a 2.83 V reading.
3. Adjust RT401 (L-CH) and RT451 (R-CH) so that the power meters indicate 1 W.

Adjustment Location:

AEP, UK, E model


speaker board
RT401 (L-CH)
RT451 (R-CH)

US model


speaker board
RT401 (L-CH)
RT451 (R-CH)

SECTION 4

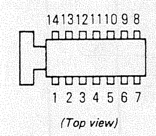
DIAGRAMS

4-1. MOUNTING DIAGRAM (AEP, UK, E Model)
– Power Amplifier Section –

- **Replacement Semiconductors**

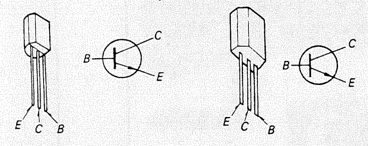
For replacement, use semiconductors except in ( ).

IC301, 351: CX171

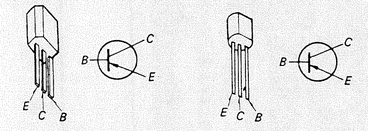

14 13 12 11 10 9 8
1 2 3 4 5 6 7

(Top view)

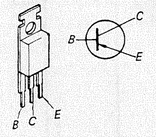
Q301, 351
Q306, 356
Q307, 357
Q308, 310, 311
Q502
: 2SC1364 (2SC634A)


B
C
E
E C B
B
C
E
E C B

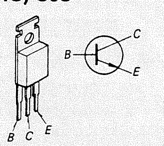
Q302, 352
Q305, 355
Q309, 501
: 2SA678 (2SA733)


B
C
E
E C B
B
C
E
E C B

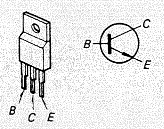
Q303, 353
Q312, 362: 2SA771



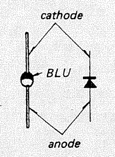
Q304, 354
Q313, 363: 2SC 1986C (2SC 1986)



Q503 – 506: 2SC2023 -R -O (2SC2023)



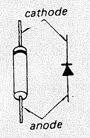
D301, 351
D302, 352: MV12N


cathode
BLU
anode

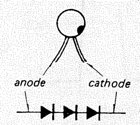
D303, 353
D304, 354: 1S2076A

D305, 355
D401, 451
D402, 452
:1T22AM (1T22)

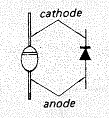
D306, 356, 308
D313, 363
D501, 502
: 1S1555


cathode
anode

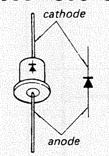
D307: MV203V


anode
cathode

D309 – 312: U05G (U05E)

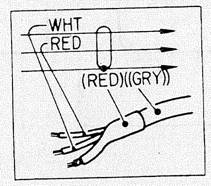

cathode
anode

D503 – 506: S34


cathode
anode

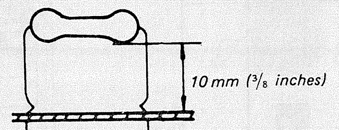
Note:

- Color code of sleeving over the end of the jacket.

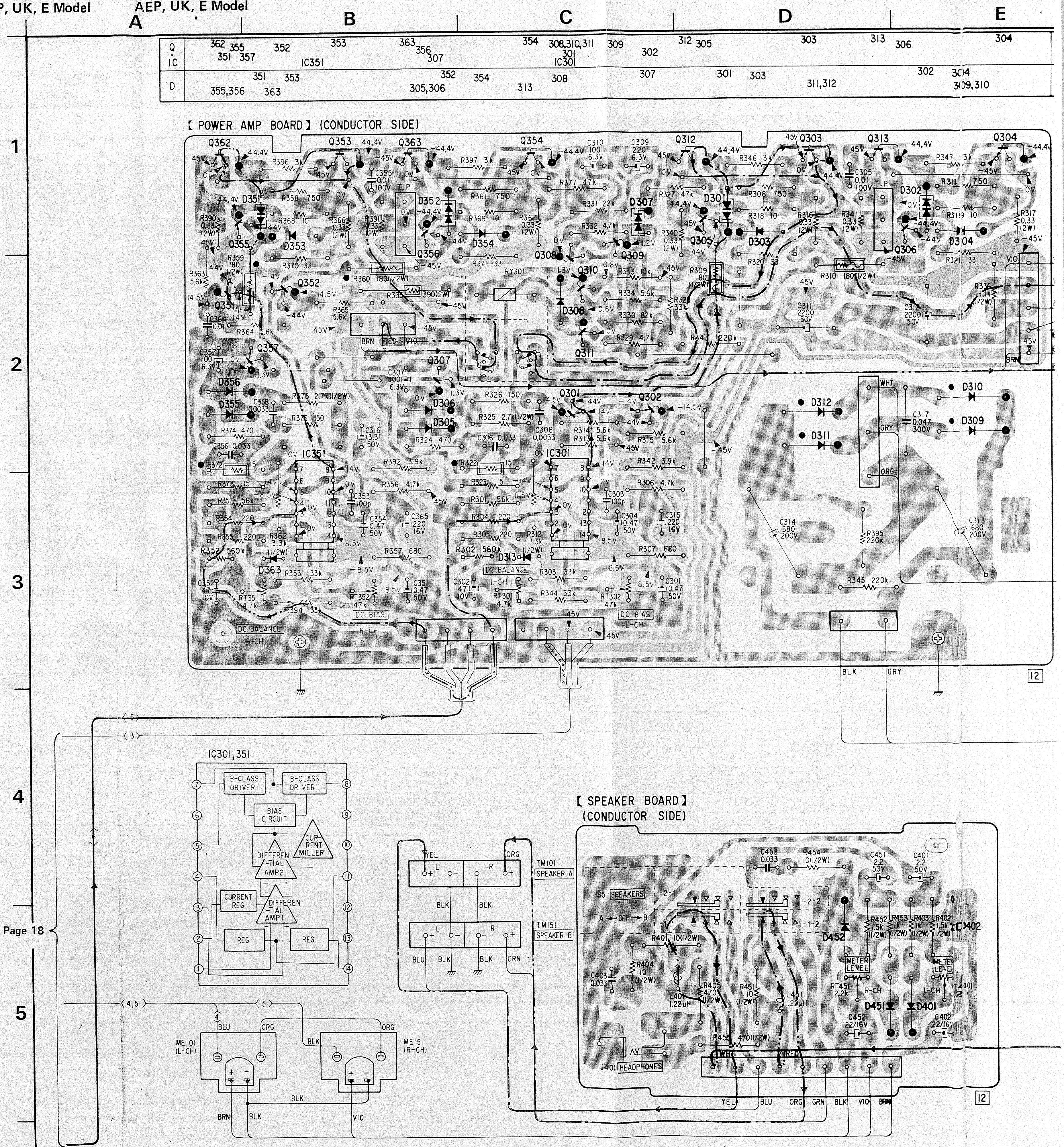

WHT
RED
(RED)((GRY))

- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▨ : B – pattern
- Signal Path
  - — - → : L-CH
  - —·-·→ : R-CH
  - ——→ : Common

All resistors and diodes indicated by ● are mounted as shown below.

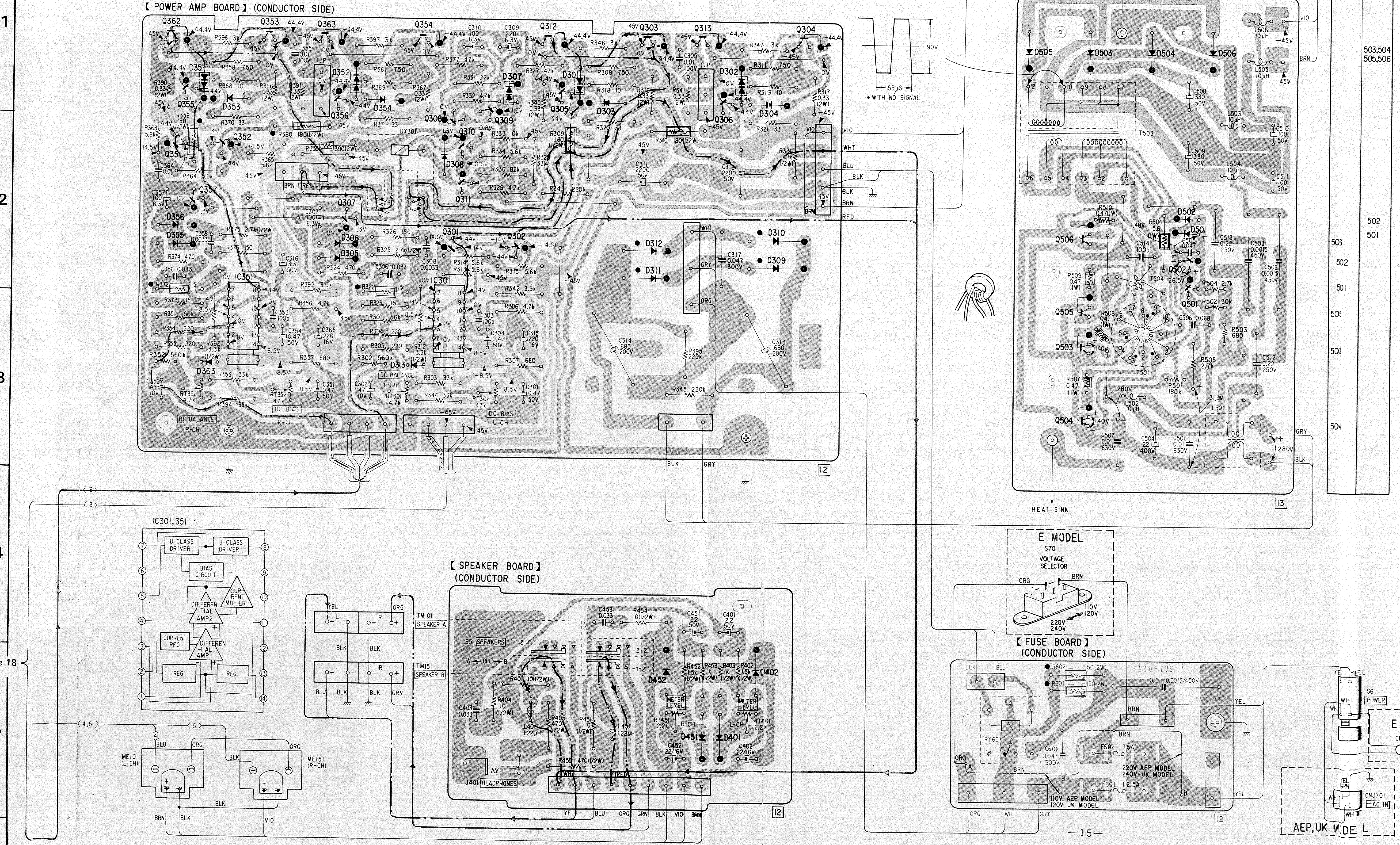

10 mm (3/8 inches)

	A	B	C	D	E
Q·IC	362, 355, 351, 357	352, 353, IC351, 363, 356, 307	354, 308, 310, 311, 301, IC301, 309, 302	312, 305, 303, 313	306, 304
D	355,356, 351, 363	353, 352, 305,306	354, 313, 308, 307	301, 303, 311,312	302, 304, 309,310


A
B
C
D
E
1
2
3
4
5
【POWER AMP BOARD】(CONDUCTOR SIDE)
Q362
Q353
Q363
Q354
Q312
Q303
Q313
Q304
Q351
Q352
Q355
Q356
Q357
Q307
Q308
Q309
Q310
Q311
Q301
Q302
Q305
Q306
IC351
IC301
D351
D352
D353
D354
D355
D356
D363
D305
D306
D307
D301
D302
D303
D304
D308
D309
D310
D311
D312
D313
RY301
DC BALANCE R-CH
DC BIAS R-CH
DC BALANCE L-CH
DC BIAS L-CH
44.4V
-44.4V
45V
-45V
14V
-14V
8.5V
-8.5V
BLK
GRY
WHT
ORG
BRN
RED
VIO
12
Page 18
IC301,351
B-CLASS DRIVER
B-CLASS DRIVER
BIAS CIRCUIT
CUR-RENT MILLER
DIFFEREN-TIAL AMP2
DIFFEREN-TIAL AMP1
CURRENT REG
REG
REG
【SPEAKER BOARD】(CONDUCTOR SIDE)
TM101 SPEAKER A
TM151 SPEAKER B
S5 SPEAKERS
A – OFF – B
J401 HEADPHONES
METER LEVEL
D451
D452
D401
D402
ME101 (L-CH)
ME151 (R-CH)
YEL
BLU
ORG
GRN
BLK
VIO
BRN
L-CH
R-CH

	A	B	C	D	E
Q IC	362, 355, 351	357, 352, 353, IC351, 363, 356, 307	354, 308, 310, 311, 301, IC301, 309, 302	312, 305, 303, 313	306, 304
D	355, 356	351, 353, 363, 352, 305, 306	354, 313, 308, 307	301, 303, 311, 312	302, 304, 309, 310

	Q	D
1		503, 504, 505, 506
2	506, 502, 501	502, 501
3	505, 503, 504	


A
B
C
D
E
F
G
H
1
2
3
4
5
【POWER AMP BOARD】(CONDUCTOR SIDE)
【PULSE-LOCKED POWER-SUPPLY BOARD】(CONDUCTOR SIDE)
【SPEAKER BOARD】(CONDUCTOR SIDE)
【FUSE BOARD】(CONDUCTOR SIDE)
E MODEL
S701 VOLTAGE SELECTOR
110V 120V
220V 240V
190V
55μS
• WITH NO SIGNAL
IC301, 351
B-CLASS DRIVER
BIAS CIRCUIT
CURRENT MILLER
DIFFERENTIAL AMP2
DIFFERENTIAL AMP1
CURRENT REG
REG
DC BALANCE R-CH
DC BIAS R-CH
DC BALANCE L-CH
DC BIAS L-CH
RY301
T501
T503
T504
HEAT SINK
TM101 SPEAKER A
TM151 SPEAKER B
S5 SPEAKERS
A ← OFF → B
J401 HEADPHONES
METER LEVEL R-CH
METER LEVEL L-CH
ME101 (L-CH)
ME151 (R-CH)
RY601
F602 T5A
F601 T2.5A
220V AEP MODEL
240V UK MODEL
110V AEP MODEL
120V UK MODEL
S6 POWER
E MODEL
CNJ701 ~AC IN
AEP, UK MODEL
Page 18
12
13
YEL
ORG
BLK
BLU
GRN
BRN
WHT
RED
GRY
V10

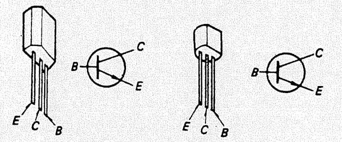
4-2. MOUNTING DIAGRAM (AEP, UK, E Model)

— Preamplifier Section —

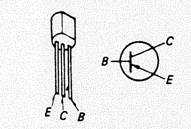
- **Replacement Semiconductors**

For replacement, use semiconductors except in ( ).

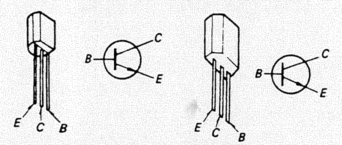
Q101, 151: 2SC1637-0 (2SC2129)



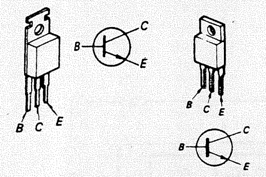
Q102, 152: 2SA872D (2SA872)
Q103, 153: 2SA896 (2SB646)



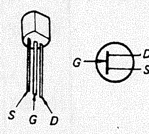
Q104, 154: 2SC1364 (2SC1634)
Q201, 202: 2SC1364 (2SC634A)



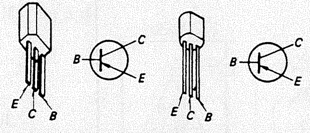
Q203: 2SD476A (2SC1826)



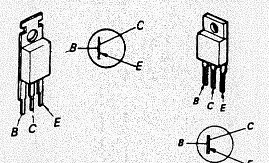
Q204, 254: 2SK30A



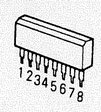
Q251, 252: 2SA678 (2SA733)



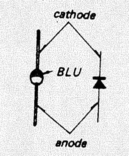
Q253: 2SB566A (2SA768)



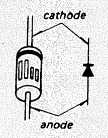
IC201, 251 : HA1457



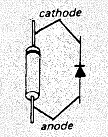
D101, 151: MV12N


cathode
BLU
anode

D102 : EQB01-06 (EQA01-06R)
D201 : EQB01-30 (EQA01-30R)
D202,251: EQB01-25 (EQA01-25R)
D252 : EQB01-28 (EQA01-28R)

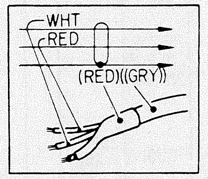

cathode
anode

D253: 10E2


cathode
anode

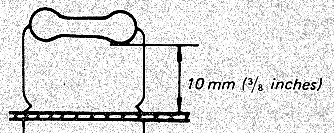
Note:

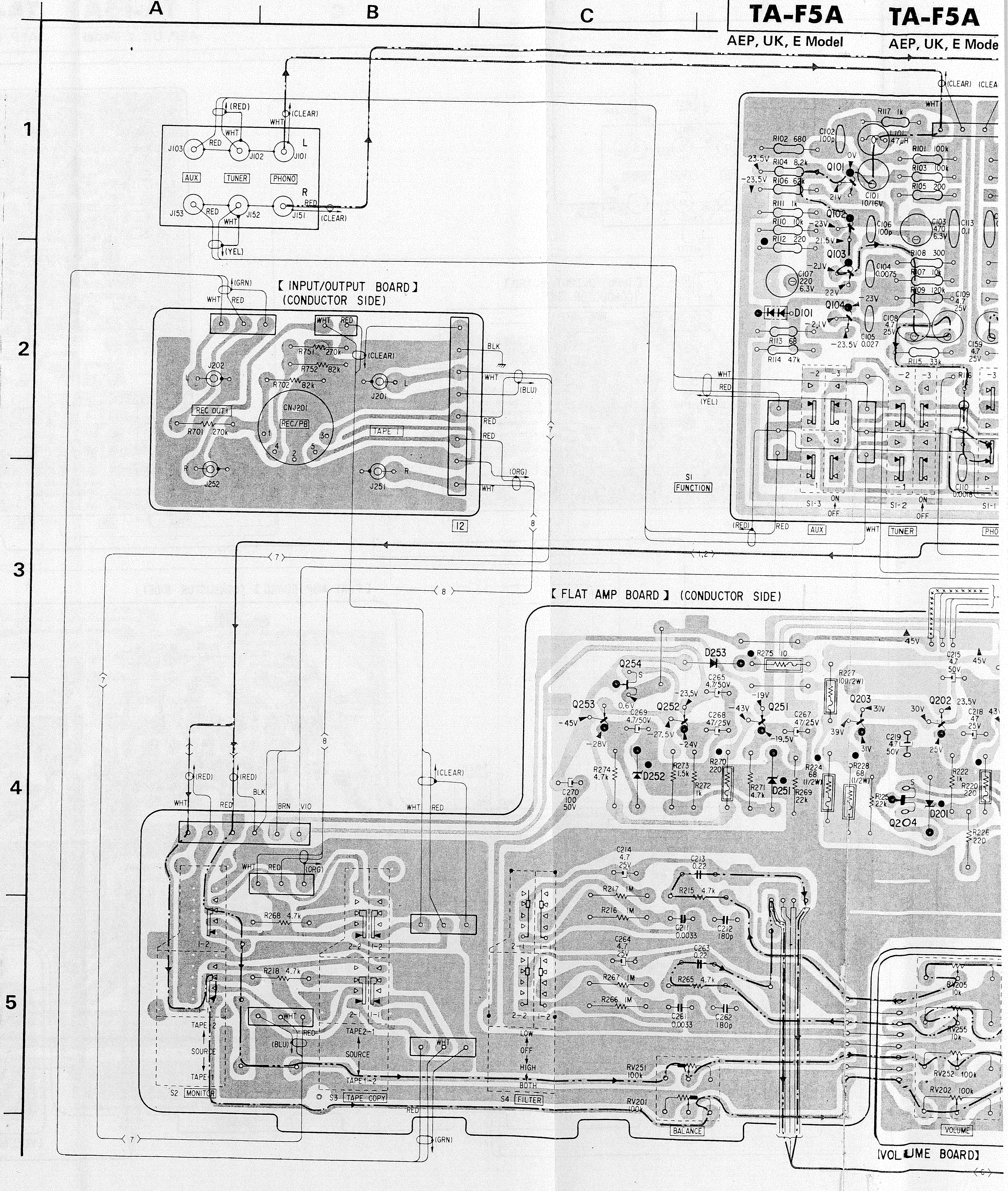
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)((GRY))

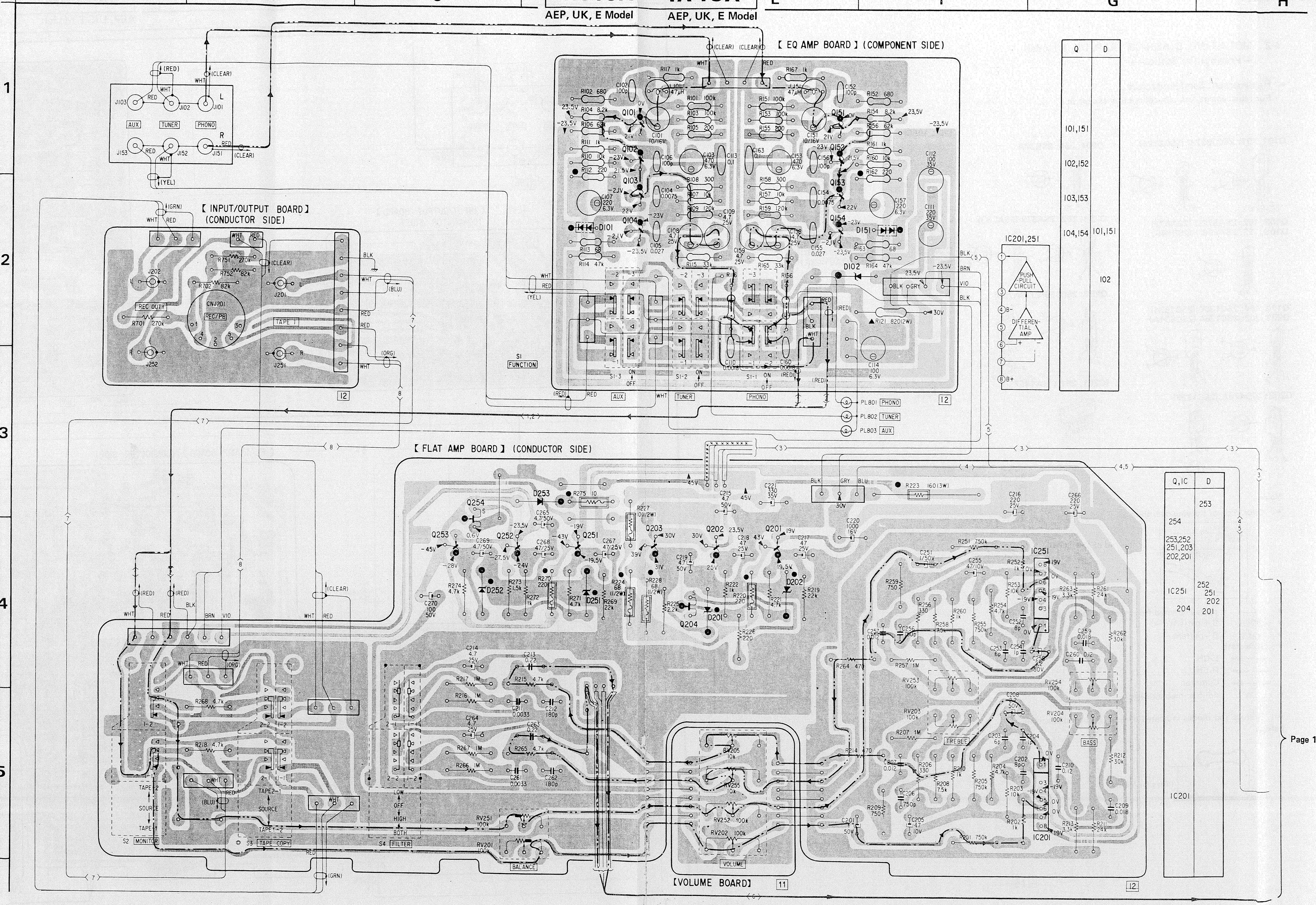
- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▨ : B − pattern
- Signal Path
  - ‑‑‑▶ : L-CH
  - ‑·‑▶ : R-CH
  - ——▶ : Common
- ▲ : nonflammable resistor.

All resistors and diodes indicated by ● are mounted as shown below.


10 mm (3/8 inches)


A
B
C
1
2
3
4
5
AUX
TUNER
PHONO
J101
J102
J103
J151
J152
J153
L
R
(RED)
(CLEAR)
(YEL)
(GRN)
[INPUT/OUTPUT BOARD]
(CONDUCTOR SIDE)
J201
J202
J251
J252
CNJ201
REC/PB
REC OUT
TAPE 1
12
S1
FUNCTION
S1-1
S1-2
S1-3
ON
OFF
Q101
Q102
Q103
Q104
D101
[FLAT AMP BOARD] (CONDUCTOR SIDE)
Q201
Q202
Q203
Q204
Q251
Q252
Q253
Q254
D201
D251
D252
D253
S2 MONITOR
S3 TAPE COPY
S4 FILTER
TAPE 1
SOURCE
TAPE 2
LOW
OFF
HIGH
BOTH
RV201
RV251
BALANCE
RV202
RV252
VOLUME
[VOLUME BOARD]

TA-F5A
AEP, UK, E Model

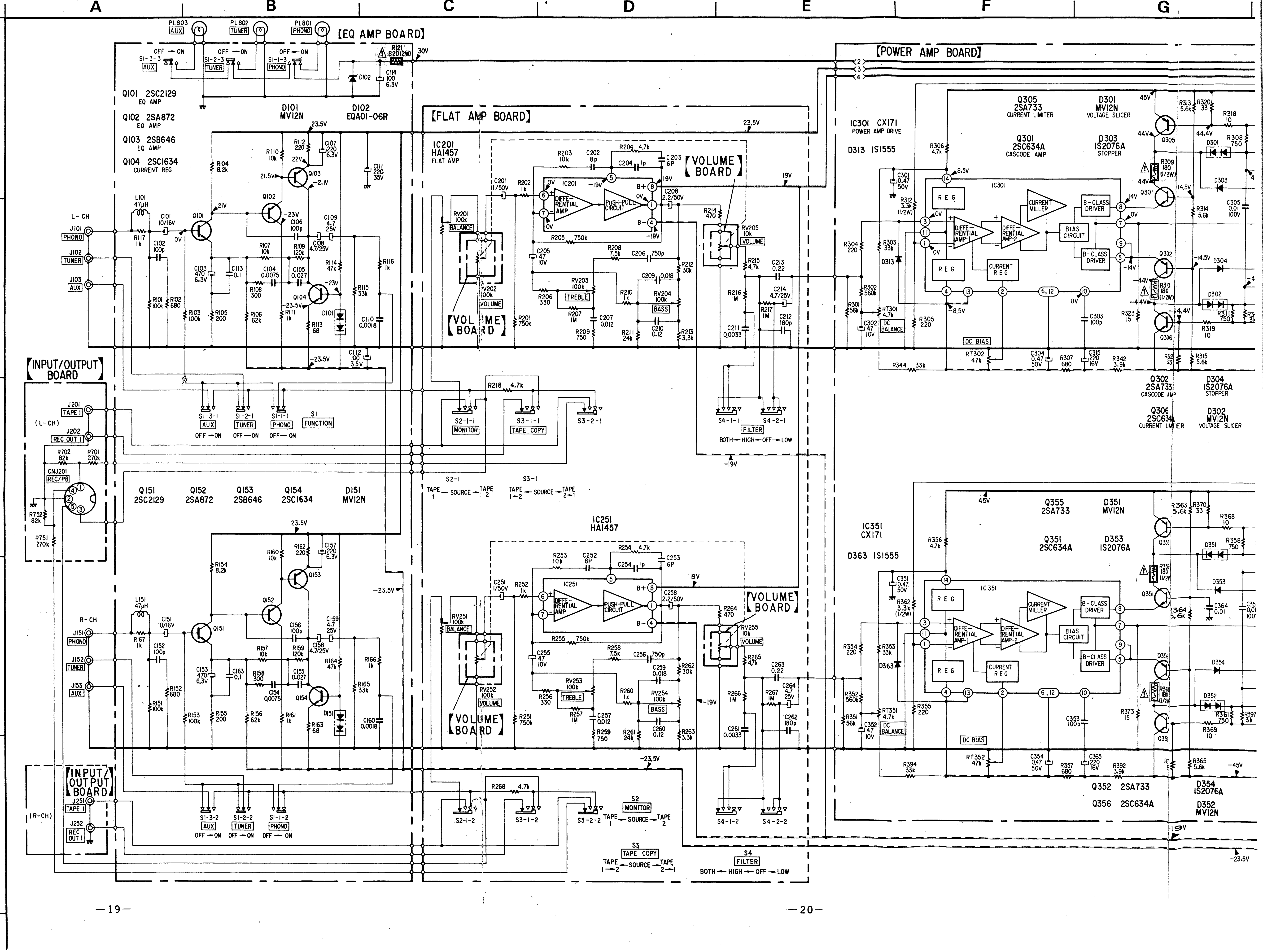

A
B
C
E
F
G
H
1
2
3
4
5
【 EQ AMP BOARD 】(COMPONENT SIDE)
【 INPUT/OUTPUT BOARD 】(CONDUCTOR SIDE)
【 FLAT AMP BOARD 】(CONDUCTOR SIDE)
【VOLUME BOARD】
AUX
TUNER
PHONO
J101
J102
J103
J151
J152
J153
J201
J202
J251
J252
CNJ201
REC/PB
REC OUT
TAPE 1
S1 FUNCTION
S1-1
S1-2
S1-3
ON
OFF
PL801 PHONO
PL802 TUNER
PL803 AUX
IC201,251
PUSH-PULL CIRCUIT
DIFFEREN-TIAL AMP
B-
B+
S2 MONITOR
S3 TAPE COPY
S4 FILTER
LOW
OFF
HIGH
BOTH
SOURCE
TAPE 1
TAPE 2
TAPE 2-1
TAPE 1-2
BALANCE
VOLUME
TREBLE
BASS
RV201
RV202
RV203
RV204
RV205
RV251
RV252
RV253
RV254
RV255
IC201
IC251
Q101
Q102
Q103
Q104
Q151
Q152
Q153
Q154
Q201
Q202
Q203
Q204
Q251
Q252
Q253
Q254
D101
D151
D102
D201
D202
D251
D252
D253
R121 820(2W)
R223 160(3W)
RED
WHT
BLK
BRN
GRY
BLU
GRN
YEL
ORG
CLEAR
V10
-23.5V
23.5V
30V
-45V
45V
11
12

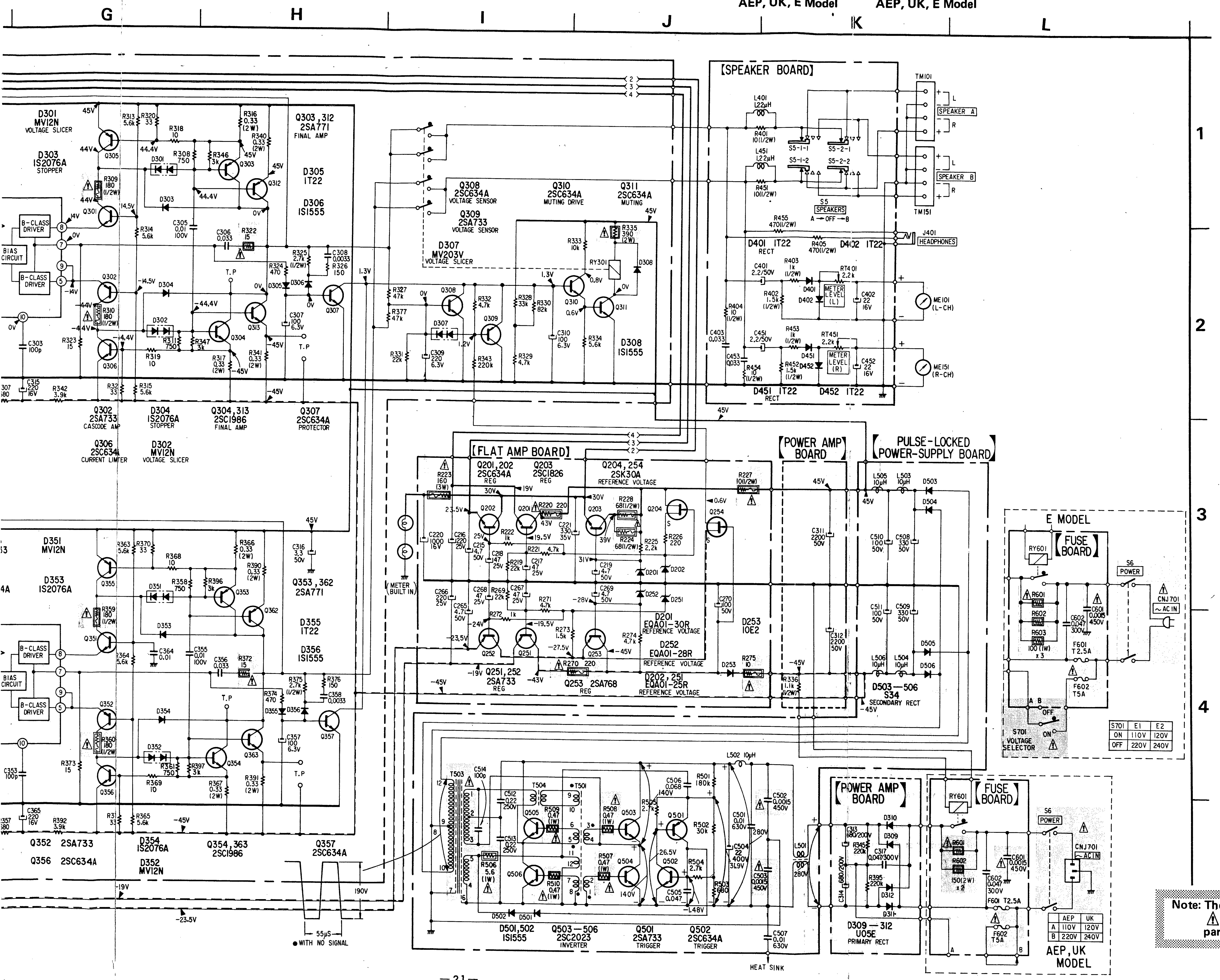
Q	D
101,151	
102,152	
103,153	
104,154	101,151
	102

Q,IC	D
	253
254	
253,252 251,203 202,201	
IC251	252 251 202
204	201
IC201	

Page 13

4-3. SCHEMATIC DIAGRAM
(AEP, UK, E Model)


A
B
C
D
E
F
G
1
2
3
4
5
[EQ AMP BOARD]
[FLAT AMP BOARD]
[POWER AMP BOARD]
[INPUT/OUTPUT BOARD]
[VOLUME BOARD]
Q101 2SC2129 EQ AMP
Q102 2SA872 EQ AMP
Q103 2SB646 EQ AMP
Q104 2SC1634 CURRENT REG
D101 MV12N
D102 EQA01-06R
Q151 2SC2129
Q152 2SA872
Q153 2SB646
Q154 2SC1634
D151 MV12N
IC201 HA1457 FLAT AMP
IC251 HA1457
IC301 CX171 POWER AMP DRIVE
D313 1S1555
IC351 CX171
D363 1S1555
Q305 2SA733 CURRENT LIMITER
Q301 2SC634A CASCODE AMP
D301 MV12N VOLTAGE SLICER
D303 1S2076A STOPPER
Q302 2SA733 CASCODE AMP
Q306 2SC634A CURRENT LIMITER
D304 1S2076A STOPPER
D302 MV12N VOLTAGE SLICER
Q355 2SA733
Q351 2SC634A
D351 MV12N
D353 1S2076A
Q352 2SA733
Q356 2SC634A
D354 1S2076A
D352 MV12N
DIFFERENTIAL AMP
PUSH-PULL CIRCUIT
DIFFERENTIAL AMP-1
DIFFERENTIAL AMP-2
CURRENT MILLER
B-CLASS DRIVER
BIAS CIRCUIT
CURRENT REG
REG
DC BIAS
DC BALANCE
BALANCE
VOLUME
TREBLE
BASS
PL803 AUX
PL802 TUNER
PL801 PHONO
S1 FUNCTION
S1-3-1 AUX
S1-2-1 TUNER
S1-1-1 PHONO
OFF — ON
S2-1-1 MONITOR
S3-1-1 TAPE COPY
S3-2-1
S4-1-1
S4-2-1 FILTER
BOTH — HIGH — OFF — LOW
S2-1 TAPE 1 — SOURCE — TAPE 2
S3-1 TAPE 1→2 — SOURCE — TAPE 2→1
S2 MONITOR TAPE 1 — SOURCE — TAPE 2
S3 TAPE COPY TAPE 1→2 — SOURCE — TAPE 2→1
S4 FILTER BOTH — HIGH — OFF — LOW
L-CH
R-CH
J101 PHONO
J102 TUNER
J103 AUX
J151 PHONO
J152 TUNER
J153 AUX
J201 TAPE 1
J202 REC OUT 1
J251 TAPE 1
J252 REC OUT 1
CNJ201 REC/PB
(L-CH)
(R-CH)
30V
23.5V
-23.5V
19V
-19V
45V
-45V


G
H
I
J
K
L
1
2
3
4
【SPEAKER BOARD】
SPEAKER A
SPEAKER B
HEADPHONES
METER LEVEL (L)
METER LEVEL (R)
ME101 (L-CH)
ME151 (R-CH)
D301 MV12N VOLTAGE SLICER
D303 1S2076A STOPPER
Q303,312 2SA771 FINAL AMP
D305 1T22
D306 1S1555
Q308 2SC634A VOLTAGE SENSOR
Q310 2SC634A MUTING DRIVE
Q311 2SC634A MUTING
Q309 2SA733 VOLTAGE SENSOR
D307 MV203V VOLTAGE SLICER
D308 1S1555
B-CLASS DRIVER
BIAS CIRCUIT
Q302 2SA733 CASCODE AMP
D304 1S2076A STOPPER
Q304,313 2SC1986 FINAL AMP
Q307 2SC634A PROTECTOR
Q306 2SC634 CURRENT LIMITER
D302 MV12N VOLTAGE SLICER
D451 1T22 RECT
D452 1T22
D401 1T22 RECT
D402 1T22
【FLAT AMP BOARD】
Q201,202 2SC634A REG
Q203 2SC1826 REG
Q204,254 2SK30A REFERENCE VOLTAGE
METER BUILT IN
D201 EQA01-30R REFERENCE VOLTAGE
D252 EQA01-28R REFERENCE VOLTAGE
Q251,252 2SA733 REG
Q253 2SA768 REG
D202,251 EQA01-25R REFERENCE VOLTAGE
【POWER AMP】 BOARD
【PULSE-LOCKED POWER-SUPPLY BOARD】
D253 10E2
D503—506 S34 SECONDARY RECT
E MODEL
【FUSE BOARD】
S6 POWER
CNJ701 ~AC IN
S701 VOLTAGE SELECTOR
D351 MV12N
D353 1S2076A
Q353,362 2SA771
D355 1T22
D356 1S1555
Q352 2SA733
Q356 2SC634A
D354 1S2076A
D352 MV12N
Q354,363 2SC1986
Q357 2SC634A
55μS
● WITH NO SIGNAL
D501,502 1S1555
Q503—506 2SC2023 INVERTER
Q501 2SA733 TRIGGER
Q502 2SC634A TRIGGER
HEAT SINK
D309—312 U05E PRIMARY RECT
AEP, UK MODEL

S701	E1	E2
ON	110V	120V
OFF	220V	240V

	AEP	UK
A	110V	120V
B	220V	240V

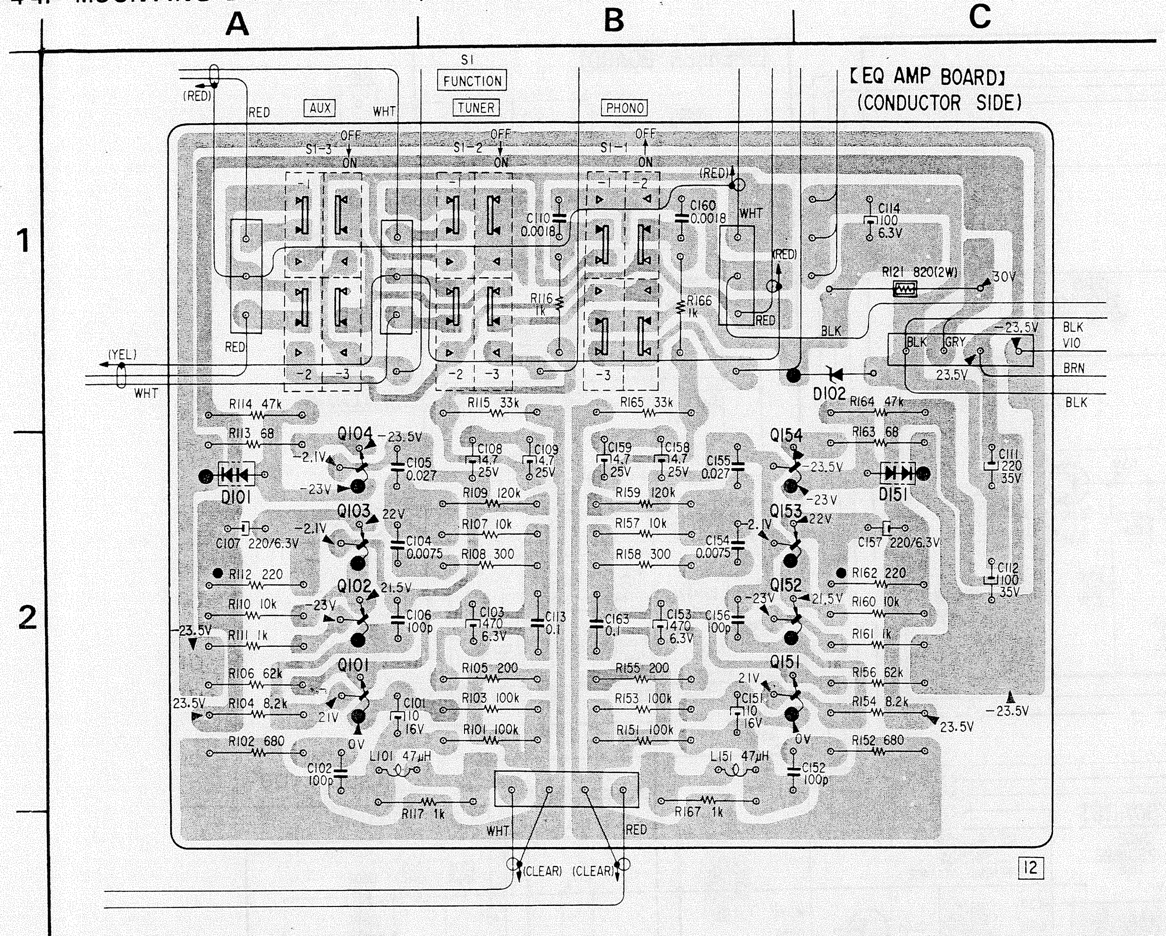
Note:

- All capacitors are in μF unless otherwise noted. pF = $\mu\mu$F 50 WV or less are not indicated except for electrolytics. lytics.
- All resistor are in ohms ¼W unless otherwise noted. kΩ = 1000 Ω, MΩ = 1000 kΩ.
- ▭ : nonflammable resistor
- ——— : B + bus.
- ▭ : panel designation
- ▭ : adjustment for repair.
- — — — : B – bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Reading are taken under no signal conditions with a VOM (20 kΩ/V) when 220 V ac is applied to the set.
- Voltage variations may be noted due to normal production tolerances
- Switch

Ref. No.	Switch	Position
S1	FUNCTION	PHONO
S2	MONITOR	SOURCE
S3	TAPE COPY	SOURCE
S4	FILTER	OFF
S5	SPEAKERS	OFF
S6	POWER	OFF
S701	VOLTAGE SELECTOR	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

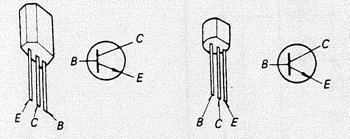
4-4. MOUNTING DIAGRAM (AEP, UK, E Model)


A
B
C
1
2
3
[EQ AMP BOARD]
(CONDUCTOR SIDE)
S1
FUNCTION
AUX
TUNER
PHONO
S1-3
S1-2
S1-1
OFF
ON
(RED)
RED
WHT
(YEL)
BLK
VIO
BRN
GRY
Q101
Q102
Q103
Q104
Q151
Q152
Q153
Q154
D101
D102
D151
L101 47μH
L151 47μH
R121 820(2W)
30V
-23.5V
23.5V
(CLEAR)
12

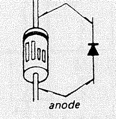
Q	104,103 102,101		154,153 152,151	Q
D	101		102 151	D

- **Replacement Semiconductors**
  For replacement, use semiconductors except in ( ).

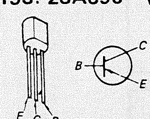
Q101, 151: 2SC1637-0 (2SC2129)



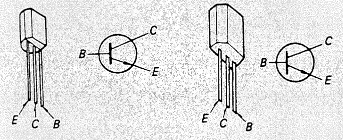
D102: EQB01-06 (EQA01-06R)


cathode
anode

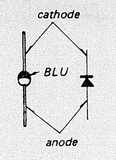
Q102, 152: 2SA872D (2SA872)
Q103, 153: 2SA896 (2SB646)



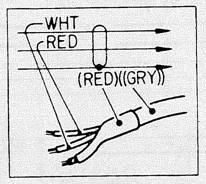
Q104, 154: 2SC1364 (2SC1634)



D101, 151: MV12N

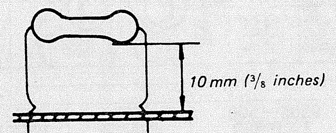

cathode
BLU
anode

Note:
- Color code of sleeving over the end of the jacket.

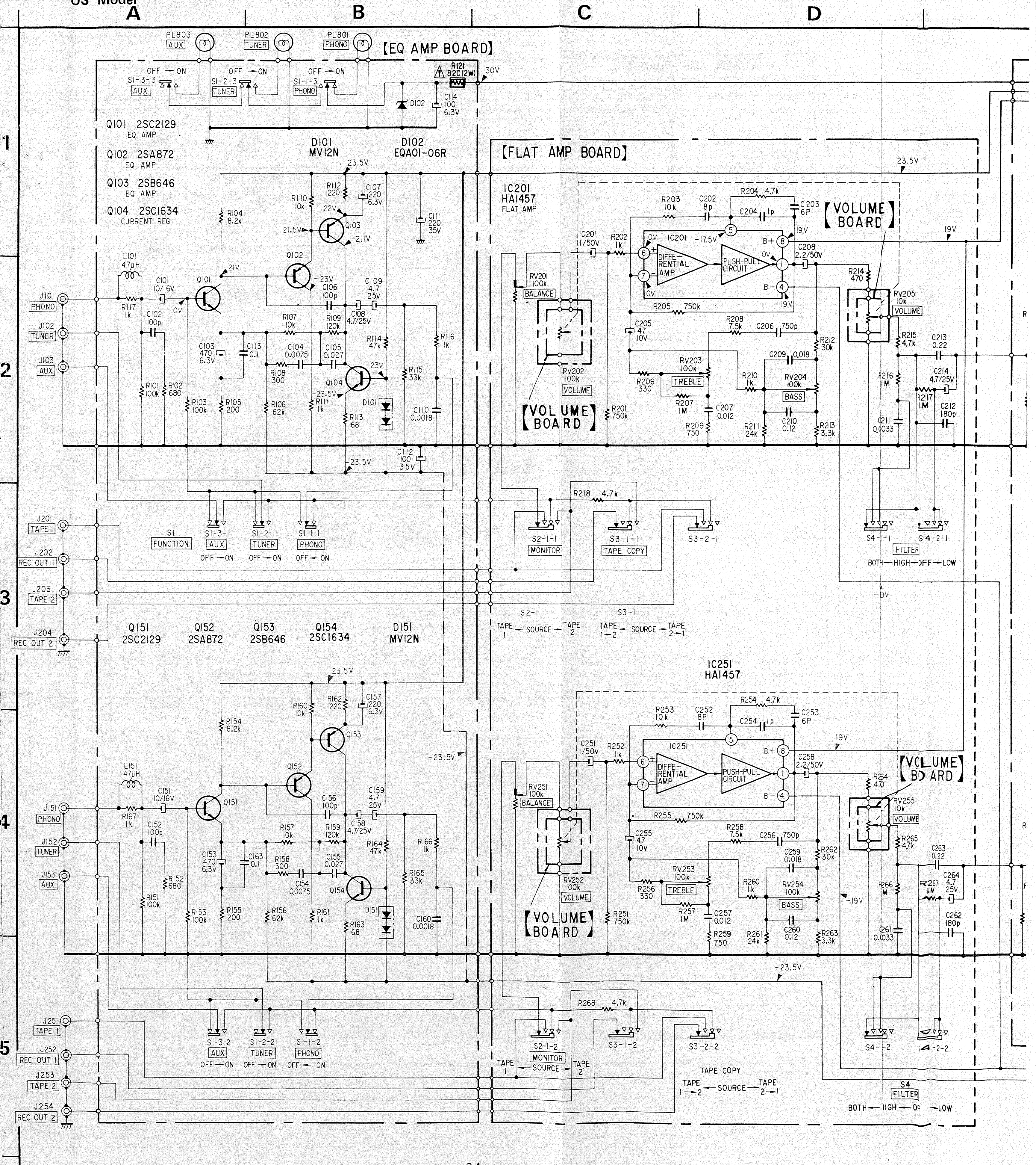

WHT
RED
(RED)(GRY)

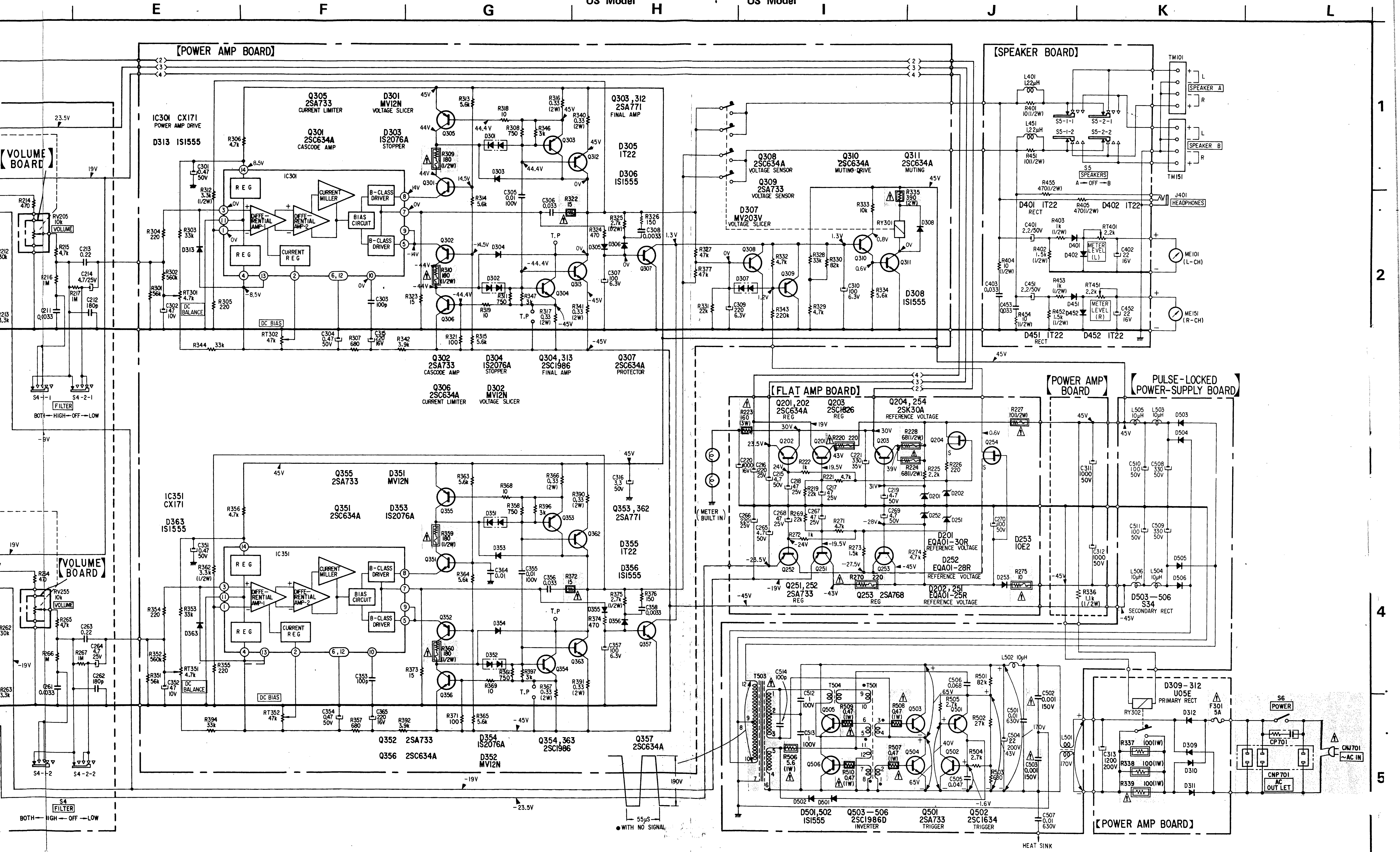
- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▨ : B – pattern

All resistors and diodes indicated by ● are mounted as shown below.


10 mm (3/8 inches)

4-5. SCHEMATIC DIAGRAM (US Model)


A
B
C
D
1
2
3
4
5
[EQ AMP BOARD]
[FLAT AMP BOARD]
[VOLUME BOARD]
Q101 2SC2129 EQ AMP
Q102 2SA872 EQ AMP
Q103 2SB646 EQ AMP
Q104 2SC1634 CURRENT REG
D101 MV12N
D102 EQA01-06R
Q151 2SC2129
Q152 2SA872
Q153 2SB646
Q154 2SC1634
D151 MV12N
PL803 AUX
PL802 TUNER
PL801 PHONO
R121 820(2W)
30V
IC201 HA1457 FLAT AMP
IC251 HA1457
DIFFE-RENTIAL AMP
PUSH-PULL CIRCUIT
RV201 100k BALANCE
RV202 100k VOLUME
RV203 100k TREBLE
RV204 100k BASS
RV205 10k VOLUME
RV251 100k BALANCE
RV252 100k VOLUME
RV253 100k TREBLE
RV254 100k BASS
RV255 10k VOLUME
J101 PHONO
J102 TUNER
J103 AUX
J151 PHONO
J152 TUNER
J153 AUX
J201 TAPE 1
J202 REC OUT 1
J203 TAPE 2
J204 REC OUT 2
J251 TAPE 1
J252 REC OUT 1
J253 TAPE 2
J254 REC OUT 2
S1 FUNCTION
S1-3-1 AUX
S1-2-1 TUNER
S1-1-1 PHONO
S1-3-2 AUX
S1-2-2 TUNER
S1-1-2 PHONO
OFF — ON
S2-1-1 MONITOR
S3-1-1 TAPE COPY
S3-2-1
S2-1-2 MONITOR
S3-1-2
S3-2-2
S2-1 TAPE 1 — SOURCE — TAPE 2
S3-1 TAPE 1-2 — SOURCE — TAPE 2-1
TAPE COPY
S4-1-1
S4-2-1
S4-1-2
S4-2-2
S4 FILTER
BOTH — HIGH — OFF — LOW
23.5V
-23.5V
19V
-19V
-9V

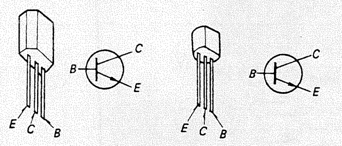

E
F
G
H
I
J
K
L
1
2
4
5
【POWER AMP BOARD】
【SPEAKER BOARD】
【FLAT AMP BOARD】
【POWER AMP BOARD】
【PULSE-LOCKED POWER-SUPPLY BOARD】
【POWER AMP BOARD】
【VOLUME BOARD】
【VOLUME BOARD】
IC301 CX171
POWER AMP DRIVE
D313 IS1555
Q305 2SA733 CURRENT LIMITER
D301 MV12N VOLTAGE SLICER
Q301 2SC634A CASCODE AMP
D303 IS2076A STOPPER
Q303, 312 2SA771 FINAL AMP
D305 IT22
D306 IS1555
Q302 2SA733 CASCODE AMP
D304 IS2076A STOPPER
Q304, 313 2SC1986 FINAL AMP
Q307 2SC634A PROTECTOR
Q306 2SC634A CURRENT LIMITER
D302 MV12N VOLTAGE SLICER
IC351 CX171
D363 IS1555
Q355 2SA733
D351 MV12N
Q351 2SC634A
D353 IS2076A
Q353, 362 2SA771
D355 IT22
D356 IS1555
Q352 2SA733
Q356 2SC634A
D354 IS2076A
D352 MV12N
Q354, 363 2SC1986
Q357 2SC634A
REG
DIFFE-RENTIAL AMP-1
DIFFE-RENTIAL AMP-2
CURRENT MILLER
B-CLASS DRIVER
BIAS CIRCUIT
CURRENT REG
DC BIAS
DC BALANCE
Q308 2SC634A VOLTAGE SENSOR
Q309 2SA733 VOLTAGE SENSOR
Q310 2SC634A MUTING DRIVE
Q311 2SC634A MUTING
D307 MV203V VOLTAGE SLICER
D308 IS1555
RY301
TM101
TM151
SPEAKER A
SPEAKER B
S5 SPEAKERS A — OFF — B
J401 HEADPHONES
D401 IT22 RECT
D402 IT22
D451 IT22 RECT
D452 IT22
METER LEVEL (L)
METER LEVEL (R)
ME101 (L-CH)
ME151 (R-CH)
S4-1-1
S4-2-1
S4-1-2
S4-2-2
FILTER
BOTH — HIGH — OFF — LOW
S4 FILTER
BOTH — HIGH — OFF — LOW
RV205 10k VOLUME
RV255 10k VOLUME
Q201, 202 2SC634A REG
Q203 2SC1826 REG
Q204, 254 2SK30A REFERENCE VOLTAGE
D201 EQA01-30R REFERENCE VOLTAGE
D252 EQA01-28R REFERENCE VOLTAGE
Q251, 252 2SA733 REG
Q253 2SA768 REG
D202, 251 EQA01-25R REFERENCE VOLTAGE
D253 10E2
(METER BUILT IN)
D503 — 506 S34 SECONDARY RECT
T503
T504
T501
D501, 502 IS1555
Q503 — 506 2SC1986D INVERTER
Q501 2SA733 TRIGGER
Q502 2SC1634 TRIGGER
HEAT SINK
D309 - 312 U05E PRIMARY RECT
RY302
F301 5A
S6 POWER
CP701
CNP701 AC OUT LET
CNJ701 ~AC IN
55μS
• WITH NO SIGNAL
190V
45V
-45V
19V
-19V
23.5V
-23.5V
T.P

4-6. MOUNTING DIAGRAM (US Model)

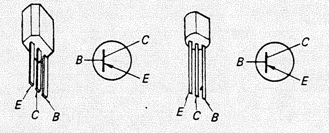
– Preamplifier Section –

- **Replacement Semiconductors**
  For replacement, Use semiconductors except In ( ).

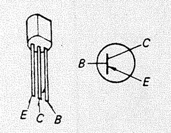
Q101, 151: 2SC1637-0 (2SC2129)



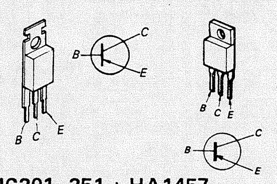
Q251, 252: 2SA678 (2SA733)



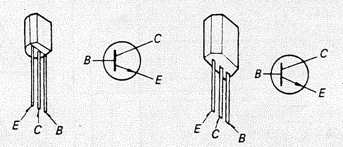
Q102, 152: 2SA872D (2SA872)
Q103, 153: 2SA896 (2SB646)



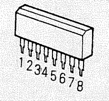
Q253: 2SB566A (2SA768)



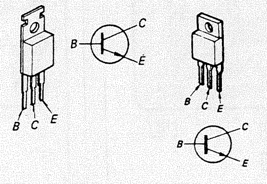
Q104, 154: 2SC1364 (2SC1634)
Q201, 202: 2SC1364 (2SC634A)



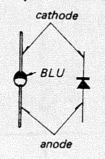
IC201, 251 : HA1457



Q203: 2SD476A (2SC1826)

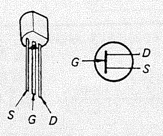


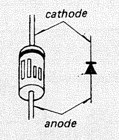
D101, 151: MV12N


cathode
BLU
anode

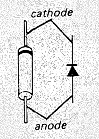
D102 : EQB01-06 (EQA01-06R)
D201 : EQB01-30 (EQA01-30R)
D202,251: EQB01-25 (EQA01-25R)
D252 : EQB01-28 (EQA01-28R)

Q204, 254: 2SK30A




cathode
anode

D253: 10E2


cathode
anode

Note:

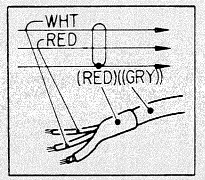
- All capacitors are in μF unless otherwise noted. pF = $\mu\mu$F 50 WV or less are not indicated except for electrolytics.
- All resistor are in ohms ¼W unless otherwise noted. kΩ = 1000 Ω, MΩ = 1000 kΩ.
- ▭ : nonflammable resistor
- —— : B + bus.
- ▭ : panel designation
- ▭ : adjustment for repair.
- – – – : B – bus.
- Voltages are dc with respect to ground unless otherwise noted.
- Reading are taken under no signal conditions with a VOM (20 kΩ/V) when 220 V ac is applied to the set.
- Voltage variations may be noted due to normal production tolerances
- Switch

Ref. No.	Switch	Position
S1	FUNCTION	PHONO
S2	MONITOR	SOURCE
S3	TAPE COPY	SOURCE
S4	FILTER	OFF
S5	SPEAKERS	OFF
S6	POWER	OFF

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

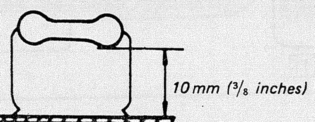
Note:

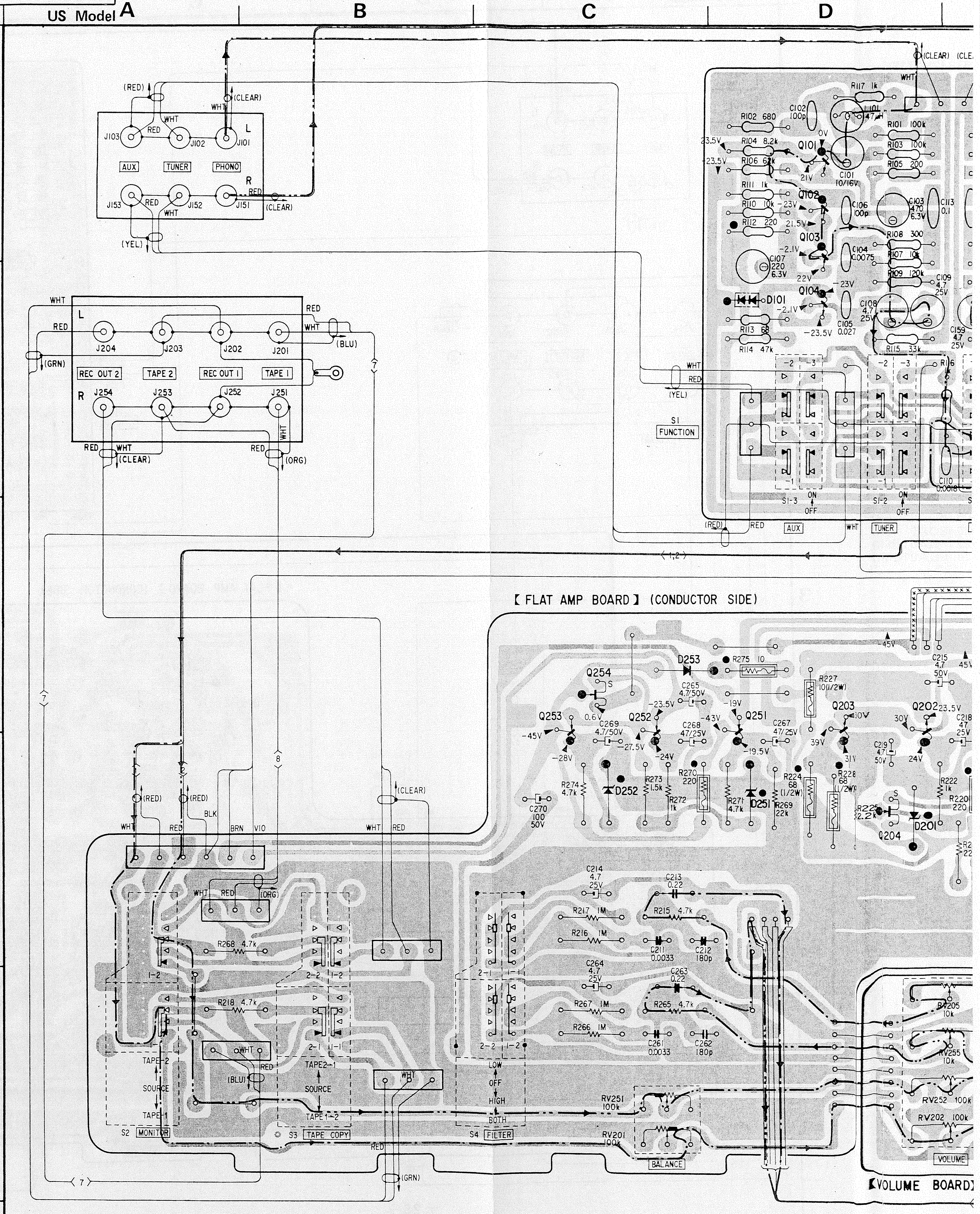
- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▧ : B – pattern
- Signal Path
  - – – ▶ : L-CH
  - –·–▶ : R-CH
  - ——▶ : Common
- ▲ : nonflammable resistor.

All resistors and diodes indicated by ● are mounted as shown below.


10 mm (3/8 inches)


A
B
C
D
1
2
3
4
5
J103
J102
J101
AUX
TUNER
PHONO
J153
J152
J151
L
R
RED
WHT
YEL
CLEAR
J204
J203
J202
J201
REC OUT 2
TAPE 2
REC OUT 1
TAPE 1
J254
J253
J252
J251
BLU
GRN
ORG
S1
FUNCTION
Q101
Q102
Q103
Q104
D101
R117 1k
L101 47μH
R102 680
C102 100p
R104 8.2k
R106 6.8k
R101 100k
R103 100k
R105 200
R111 1k
R110 10k
R112 220
C101 10/16V
C106 100p
C103 470 6.3V
C113 0.1
R108 300
R107 10k
R109 120k
C104 0.0075
C107 220 6.3V
C108 4.7 25V
C109 4.7 25V
C105 0.027
R113 68
R114 47k
R115 33k
C159 4.7 25V
C110 0.0068
S1-3
S1-2
ON
OFF
AUX
TUNER
【FLAT AMP BOARD】 (CONDUCTOR SIDE)
Q254
Q253
Q252
Q251
Q203
Q202
Q204
D253
D252
D251
D201
R275 10
R227 10(1/2W)
C265 4.7/50V
C269 4.7/50V
C268 47/25V
C267 47/25V
C215 4.7 50V
C218 47 25V
C219 47 50V
C270 100 50V
R274 4.7k
R273 1.5k
R272 1k
R270 220
R271 4.7k
R269 22k
R224 68 (1/2W)
R228 68 (1/2W)
R225 2.2k
R222 1k
R220 10k
S2 MONITOR
S3 TAPE COPY
S4 FILTER
TAPE-2
SOURCE
TAPE-1
TAPE 1-2
TAPE2-1
LOW
OFF
HIGH
BOTH
R268 4.7k
R218 4.7k
C214 4.7 25V
C213 0.22
R217 1M
R216 1M
R215 4.7k
C211 0.0033
C212 180p
C264 4.7 25V
C263 0.22
R267 1M
R266 1M
R265 4.7k
C261 0.0033
C262 180p
RV251 100k
RV201 100k
BALANCE
RV205 10k
RV255 10k
RV252 100k
RV202 100k
VOLUME
【VOLUME BOARD】
RED
WHT
BLK
BRN
VIO
(RED)
(CLEAR)
(GRN)

678 (2SA733)

(2SA768)

1457

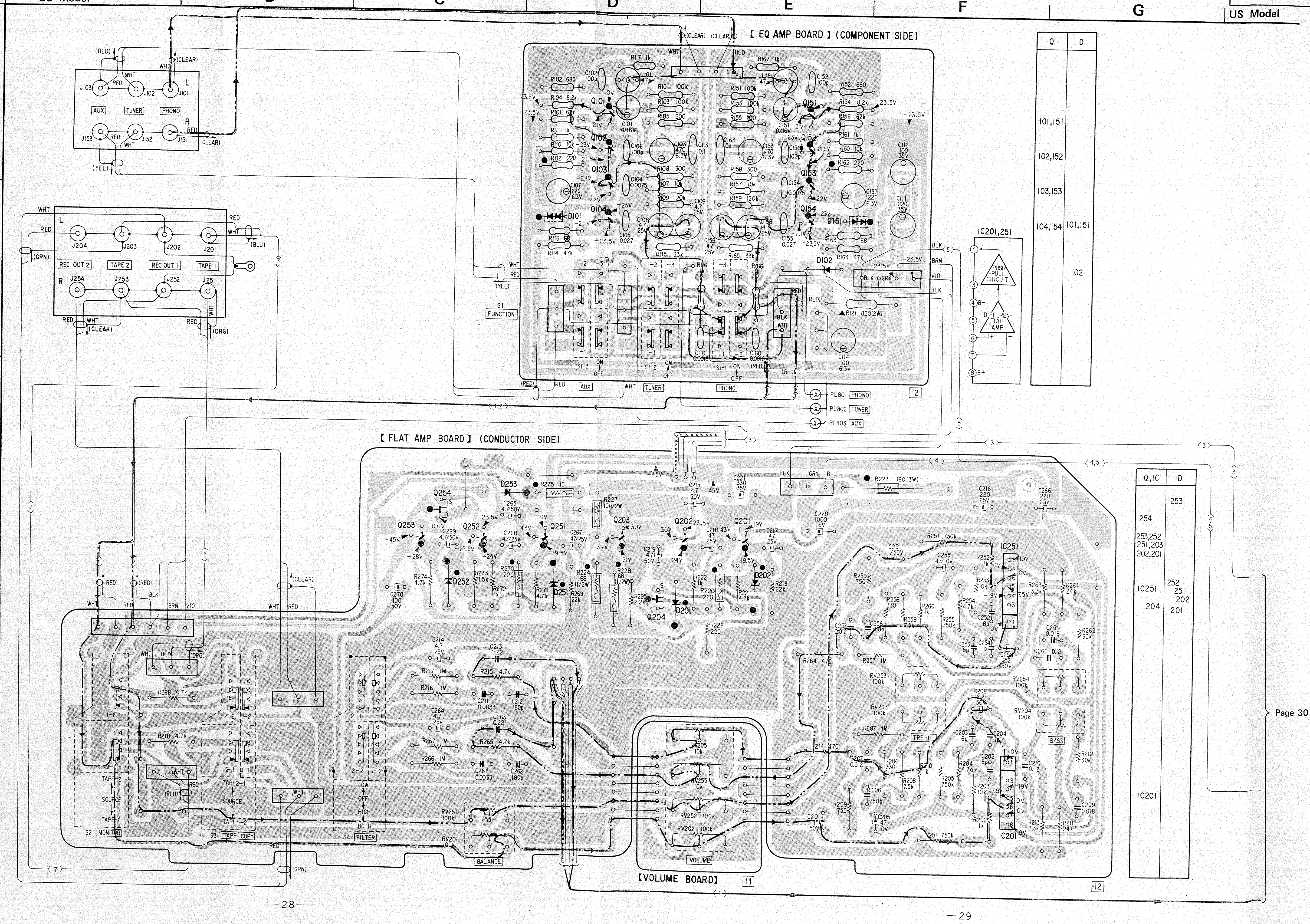
N

06 (EQA01-06R)
30 (EQA01-30R)
25 (EQA01-25R)
28 (EQA01-28R)

jacket.

onent side.

unted as shown


A
B
C
D
E
F
G
1
2
3
4
5
【EQ AMP BOARD】(COMPONENT SIDE)
【FLAT AMP BOARD】(CONDUCTOR SIDE)
【VOLUME BOARD】
AUX
TUNER
PHONO
REC OUT 2
TAPE 2
REC OUT 1
TAPE 1
S1 FUNCTION
S1-3
S1-2
S1-1
IC201,251
PUSH PULL CIRCUIT
DIFFEREN-TIAL AMP
B-
B+
PL801 PHONO
PL802 TUNER
PL803 AUX
S2 MONITOR
S3 TAPE COPY
S4 FILTER
SOURCE
TAPE-1
TAPE-2
LOW
OFF
HIGH
BOTH
BALANCE
VOLUME
TREBLE
BASS
IC251
IC201
Page 30

Q	D
101,151	
102,152	
103,153	
104,154	101,151
	102

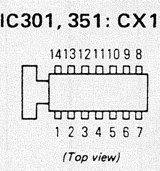
Q,IC	D
	253
254	
253,252 251,203 202,201	
IC251	252 251 202
204	201
IC201	

4-7. MOUNTING DIAGRAM (US Model)

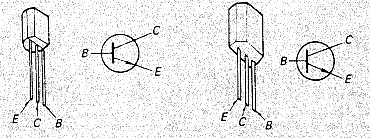
– Power Amplifier Section –

- **Replacement Semiconductors**
  For replacement, use semiconductors except in ( ).

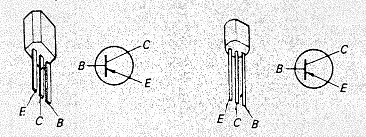
IC301, 351: CX171


1413121110 9 8
1 2 3 4 5 6 7
(Top view)

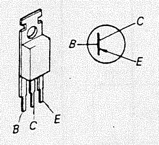
Q301, 351
Q306, 356
Q307, 357
Q308, 310, 311 } : 2SC1364 (2SC634A)
Q502 : 2SC1364 (2SC1634)


B
C
E
E C B
B
C
E
E C B

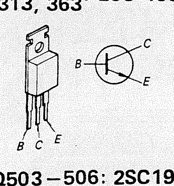
Q302, 352
Q305, 355
Q309, 501 } : 2SA678 (2SA733)


B
C
E
E C B
B
C
E
E C B

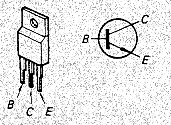
Q303, 353
Q312, 362: 2SA771



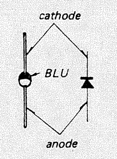
Q304, 354
Q313, 363: 2SC 1986C (2SC 1986)



Q503 – 506: 2SC1986C-0 (2SC1986D)



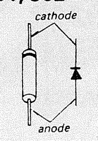
D301, 351
D302, 352: MV12N


cathode
BLU
anode

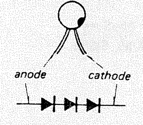
D303, 353
D304, 354: 1S2076A

D305, 355
D401, 451
D402, 452 } :1T22AM (1T22)

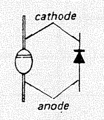
D306, 356, 308
D313, 363
D501, 502 } :1S1555


cathode
anode

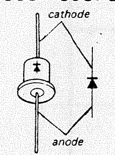
D307: MV203V


anode
cathode

D309 – 312: U05G (U05E)

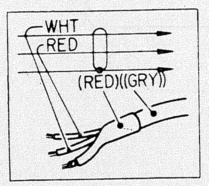

cathode
anode

D503 – 506: S34


cathode
anode

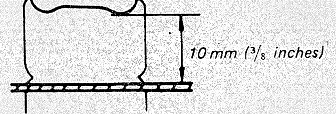
Note:

- Color code of sleeving over the end of the jacket.

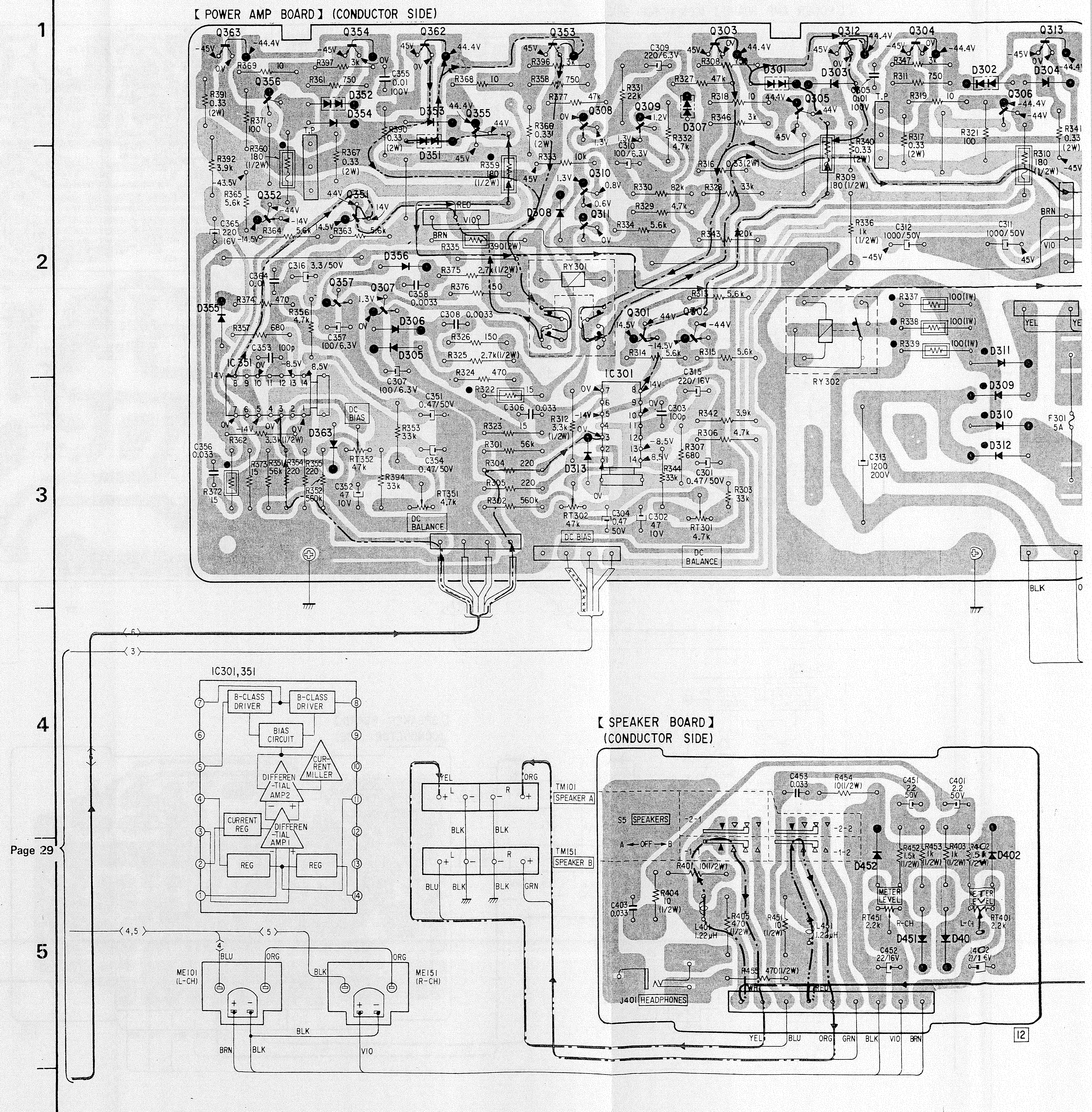

WHT
RED
(RED)((GRY))

- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▨ : B – pattern
- Signal Path
  - – - ➡ : L-CH
  - - - - ➡ : R-CH
  - ——➡ : Common

All resistors and diodes indicated by ● are mounted as shown below.

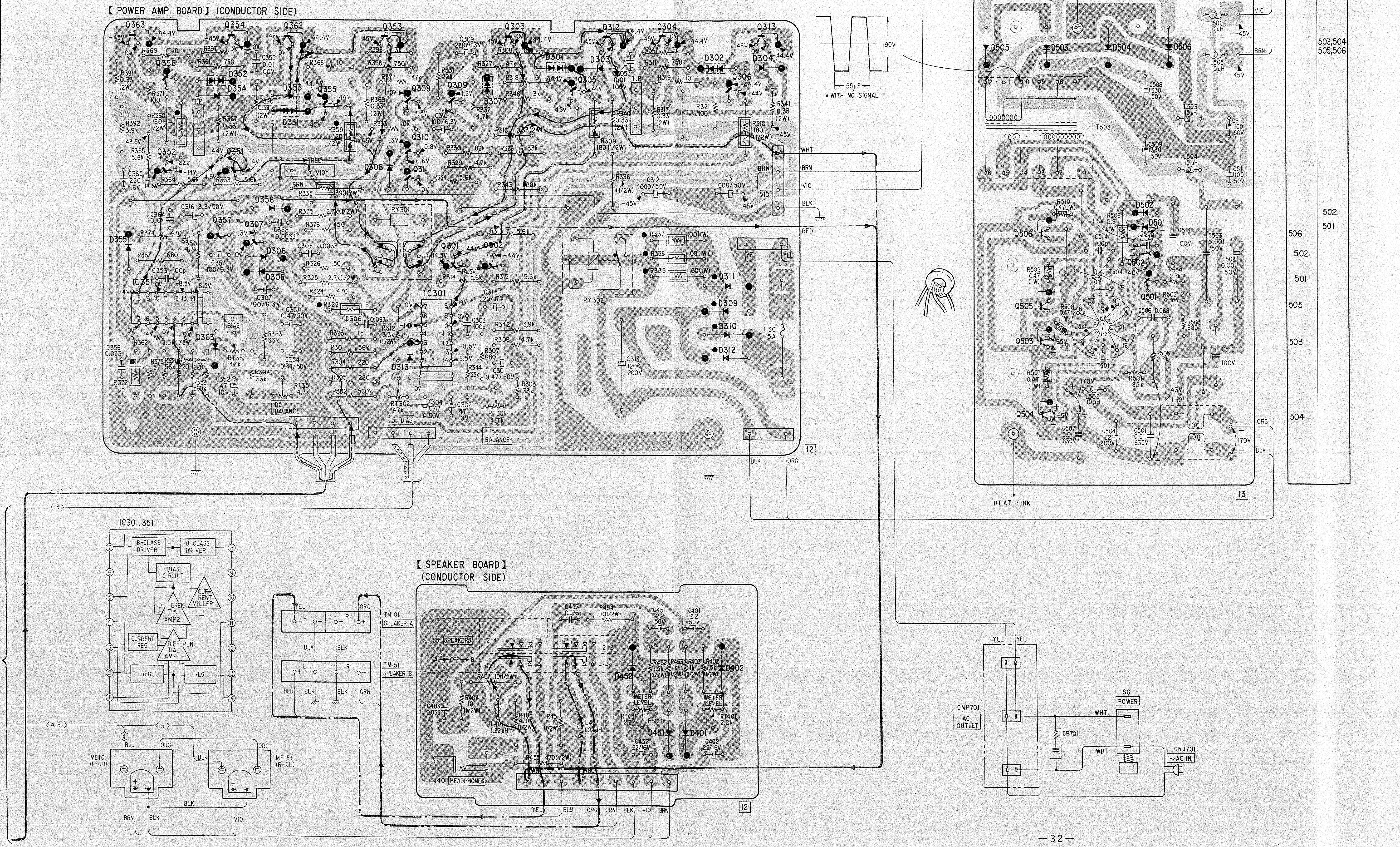

10 mm (3/8 inches)

	A	B	C	D	
D	355	352 354 363 356 306 305 353 351	308 313 307	301 303	302 311 309 310 312 304
Q, IC	363 356 352	IC351 357 354 351 307 362 355	353 308 310 311 IC301 309 301 302 303	305 312 304	306 313

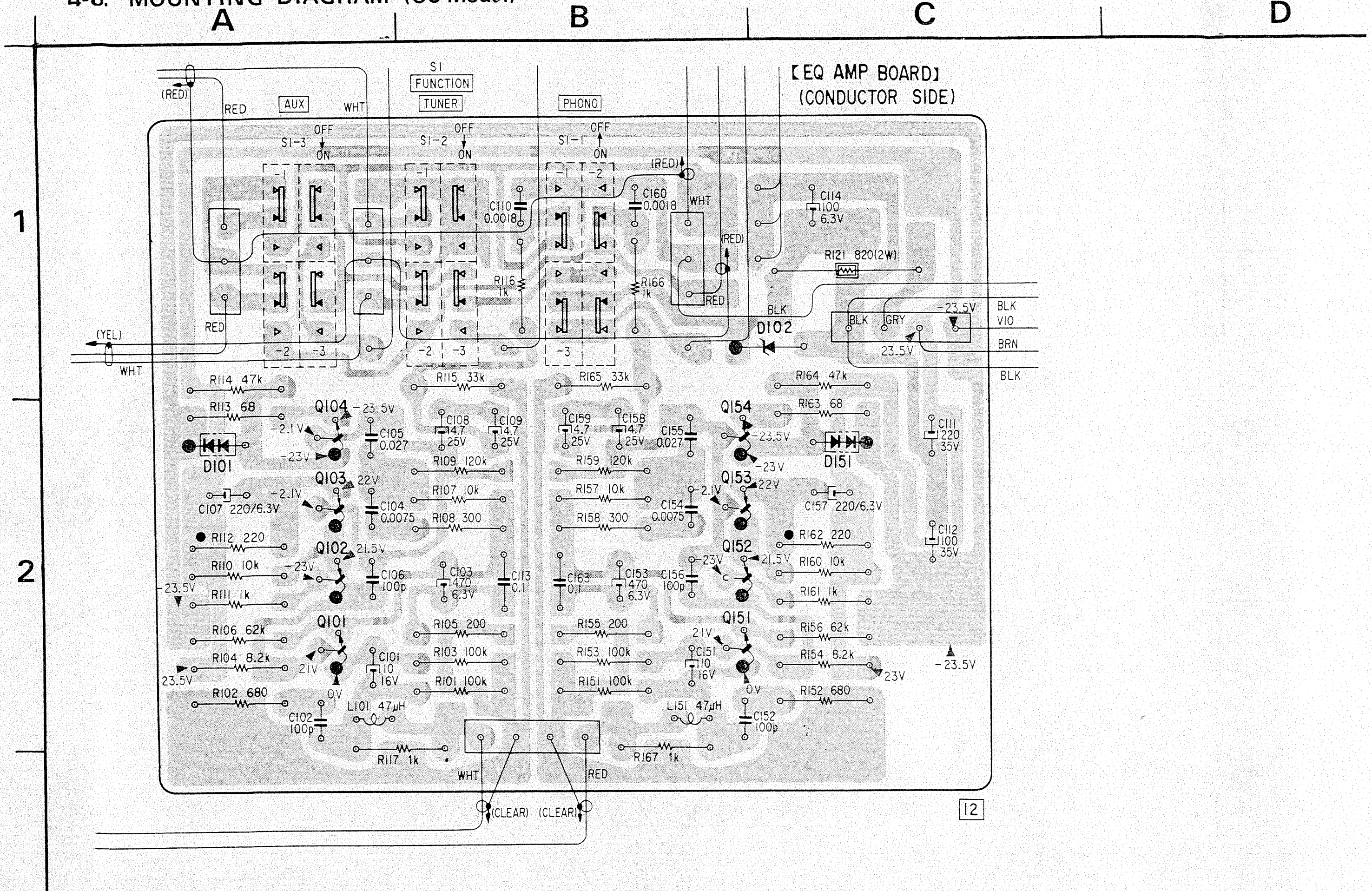

1
2
3
4
5
Page 29
【 POWER AMP BOARD 】 (CONDUCTOR SIDE)
Q363
Q354
Q362
Q353
Q303
Q312
Q304
Q313
Q356
Q355
Q352
Q351
Q357
Q307
Q301
Q302
Q308
Q309
Q310
Q311
Q305
Q306
IC351
IC301
RY301
RY302
DC BIAS
DC BALANCE
F301 5A
IC301,351
B-CLASS DRIVER
BIAS CIRCUIT
CUR-RENT MILLER
DIFFEREN-TIAL AMP2
DIFFEREN-TIAL AMP1
CURRENT REG
REG
【 SPEAKER BOARD 】 (CONDUCTOR SIDE)
TM101 SPEAKER A
TM151 SPEAKER B
S5 SPEAKERS
A ← OFF → B
METER LEVEL
J401 HEADPHONES
ME101 (L-CH)
ME151 (R-CH)
YEL
ORG
BLK
BLU
GRN
VIO
BRN
12

	A	B	C	D	E
D	355	352 354 363 356 306 305 353 351	308 313 307	301 303	302 311 309 310 312 304
Q, IC	363 356 352 IC351	357 354 351 307 362	355 353 308 310 311 IC301 309 301 302 303	305 312 304	306 313

	Q	D
1		503,504 505,506
2	506 502	502 501
3	501 505 503 504	


A
B
C
D
E
F
G
H
1
2
3
4
5
【POWER AMP BOARD】(CONDUCTOR SIDE)
Q363
Q354
Q362
Q353
Q303
Q312
Q304
Q313
Q356
Q355
Q352
Q351
Q357
Q307
Q308
Q309
Q310
Q311
Q305
Q306
Q301
Q302
D352
D354
D353
D351
D301
D303
D302
D304
D307
D308
D356
D306
D305
D355
D363
D313
D311
D309
D310
D312
IC351
IC301
RY301
RY302
F301 5A
C313 1200 200V
C312 1000/50V
C311 1000/50V
DC BIAS
DC BALANCE
DC BIAS
DC BALANCE
WHT
BRN
VIO
BLK
RED
YEL
ORG
12
190V
55μS
• WITH NO SIGNAL
【PULSE-LOCKED POWER-SUPPLY BOARD】(CONDUCTOR SIDE)
D505
D503
D504
D506
D502
D501
Q506
Q505
Q503
Q504
Q502
Q501
T503
T504
T501
L506 10μH
L505 10μH
L503 10μH
L504 10μH
L502 10μH
L501
170V
HEAT SINK
13
IC301,351
B-CLASS DRIVER
B-CLASS DRIVER
BIAS CIRCUIT
CUR-RENT MILLER
DIFFEREN-TIAL AMP2
DIFFEREN-TIAL AMP1
CURRENT REG
REG
REG
Page 29
【SPEAKER BOARD】(CONDUCTOR SIDE)
TM101 SPEAKER A
TM151 SPEAKER B
S5 SPEAKERS
A ← OFF → B
J401 HEADPHONES
METER LEVEL R-CH
METER LEVEL L-CH
D452
D402
D451
D401
L401 1.22μH
L451 1.22μH
RT451 2.2k
RT401 2.2k
12
ME101 (L-CH)
ME151 (R-CH)
BLU
ORG
BLK
BRN
VIO
GRN
CNP701 AC OUTLET
CP701
S6 POWER
CNJ701 ~AC IN

4-8. MOUNTING DIAGRAM (US Model)

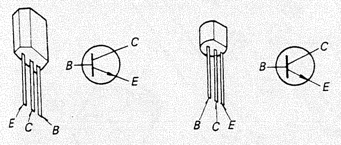

A
B
C
D
1
2
3
[EQ AMP BOARD]
(CONDUCTOR SIDE)
S1
FUNCTION
AUX
TUNER
PHONO
S1-3
S1-2
S1-1
OFF
ON
(RED)
RED
WHT
(YEL)
BLK
GRY
VIO
BRN
C110 0.0018
C160 0.0018
C114 100 6.3V
R121 820(2W)
R116 1k
R166 1k
D102
-23.5V
23.5V
R114 47k
R113 68
R115 33k
R165 33k
R164 47k
R163 68
Q104
Q154
C105 0.027
C108 4.7 25V
C109 4.7 25V
C159 4.7 25V
C158 4.7 25V
C155 0.027
C111 220 35V
D101
D151
R109 120k
R159 120k
Q103
Q153
R107 10k
R157 10k
C107 220/6.3V
C104 0.0075
R108 300
R158 300
C154 0.0075
C157 220/6.3V
C112 100 35V
R112 220
R162 220
Q102
Q152
R110 10k
R160 10k
C106 100p
C103 470 6.3V
C113 0.1
C163 0.1
C153 470 6.3V
C156 100p
R111 1k
R161 1k
Q101
Q151
R106 62k
R105 200
R155 200
R156 62k
R104 8.2k
C101 10 16V
R103 100k
R153 100k
C151 10 16V
R154 8.2k
R102 680
R101 100k
R151 100k
R152 680
C102 100p
L101 47μH
L151 47μH
C152 100p
R117 1k
R167 1k
-2.1V
-23V
22V
21.5V
21V
0V
23V
(CLEAR)
12

Q	104,103 102,101		154,153 152,151	Q
D	101		102 151	D

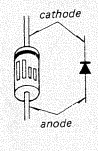
- **Replacement Semiconductors**

For replacement, use semiconductors except in ( ).

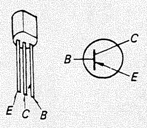
Q101, 151: 2SC1637-0 (2SC2129)



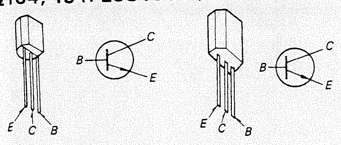
D102: EQB01-06 (EQA01-06R)


cathode
anode

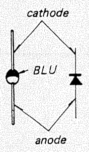
Q102, 152: 2SA872D (2SA872)
Q103, 153: 2SA896 (2SB646)



Q104, 154: 2SC1364 (2SC1634)

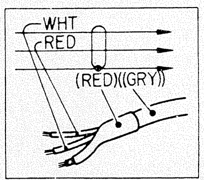


D101, 151: MV12N


cathode
BLU
anode

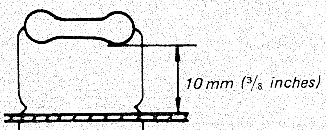
Note:

- Color code of sleeving over the end of the jacket.


WHT
RED
(RED)(GRY)

- ○—— : parts extracted from the component side.
- ▨ : B + pattern
- ▨ : B – pattern

All resistors and diodes indicated by ● are mounted as shown below.

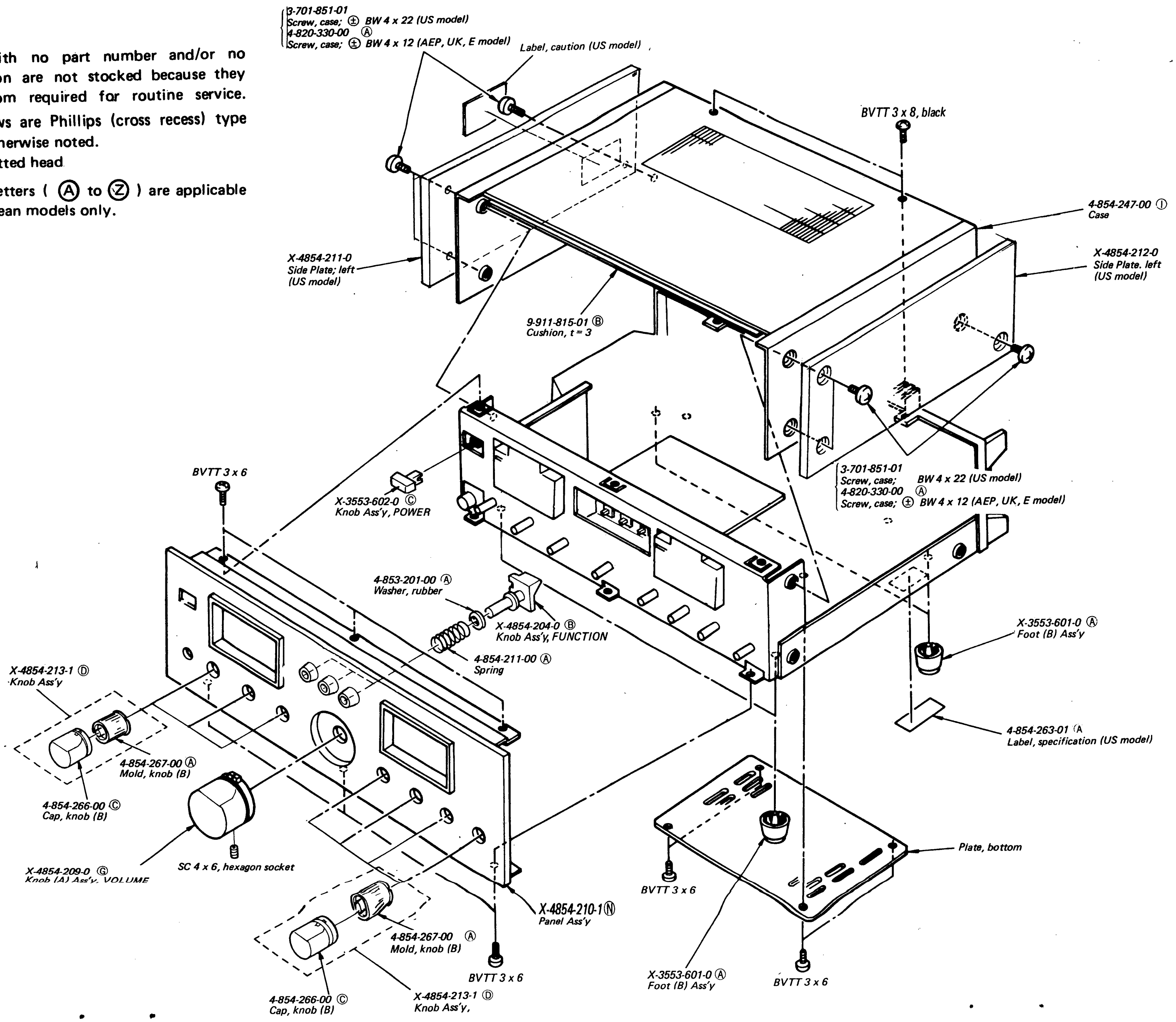

10 mm (3/8 inches)

SECTION 5
EXPLODED VIEWS

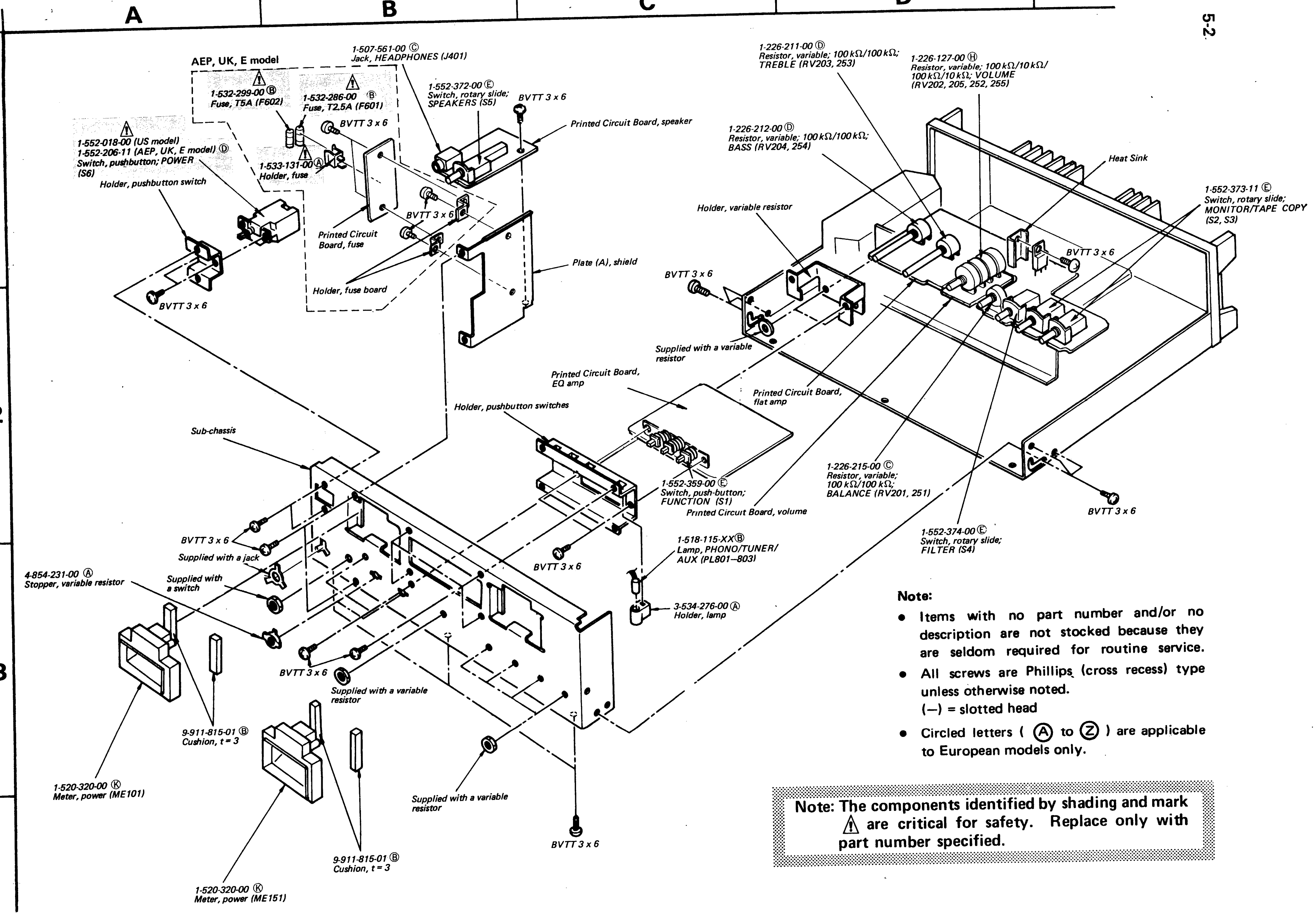
5-1.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (—) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.


A
B
C
D
E
1
2
3
4
3-701-851-01
Screw, case; ⊕ BW 4 x 22 (US model)
4-820-330-00 Ⓐ
Screw, case; ⊕ BW 4 x 12 (AEP, UK, E model)
Label, caution (US model)
BVTT 3 x 8, black
4-854-247-00 Ⓘ
Case
X-4854-212-0
Side Plate. left
(US model)
X-4854-211-0
Side Plate; left
(US model)
9-911-815-01 Ⓑ
Cushion, t = 3
3-701-851-01
Screw, case; BW 4 x 22 (US model)
4-820-330-00 Ⓐ
Screw, case; ⊕ BW 4 x 12 (AEP, UK, E model)
BVTT 3 x 6
X-3553-602-0 Ⓒ
Knob Ass'y, POWER
4-853-201-00 Ⓐ
Washer, rubber
X-4854-204-0 Ⓑ
Knob Ass'y, FUNCTION
4-854-211-00 Ⓐ
Spring
X-3553-601-0 Ⓐ
Foot (B) Ass'y
X-4854-213-1 Ⓓ
Knob Ass'y
4-854-267-00 Ⓐ
Mold, knob (B)
4-854-266-00 Ⓒ
Cap, knob (B)
4-854-263-01 Ⓐ
Label, specification (US model)
X-4854-209-0 Ⓖ
Knob (A) Ass'y, VOLUME
SC 4 x 6, hexagon socket
Plate, bottom
X-4854-210-1 Ⓝ
Panel Ass'y
BVTT 3 x 6
4-854-267-00 Ⓐ
Mold, knob (B)
BVTT 3 x 6
X-3553-601-0 Ⓐ
Foot (B) Ass'y
BVTT 3 x 6
4-854-266-00 Ⓒ
Cap, knob (B)
X-4854-213-1 Ⓓ
Knob Ass'y,

5-2.


A
B
C
D
1
2
3
AEP, UK, E model
1-532-299-00 Ⓑ
Fuse, T5A (F602)
1-532-286-00 Ⓑ
Fuse, T2.5A (F601)
1-507-561-00 Ⓒ
Jack, HEADPHONES (J401)
1-552-372-00 Ⓔ
Switch, rotary slide; SPEAKERS (S5)
BVTT 3 x 6
Printed Circuit Board, speaker
1-552-018-00 (US model)
1-552-206-11 (AEP, UK, E model) Ⓓ
Switch, pushbutton; POWER (S6)
1-533-131-00 Ⓐ
Holder, fuse
Holder, pushbutton switch
BVTT 3 x 6
Printed Circuit Board, fuse
BVTT 3 x 6
Plate (A), shield
Holder, fuse board
BVTT 3 x 6
1-226-211-00 Ⓓ
Resistor, variable; 100 kΩ/100 kΩ; TREBLE (RV203, 253)
1-226-127-00 Ⓗ
Resistor, variable; 100 kΩ/10 kΩ/100 kΩ/10 kΩ; VOLUME (RV202, 205, 252, 255)
1-226-212-00 Ⓓ
Resistor, variable; 100 kΩ/100 kΩ; BASS (RV204, 254)
Heat Sink
1-552-373-11 Ⓔ
Switch, rotary slide; MONITOR/TAPE COPY (S2, S3)
Holder, variable resistor
BVTT 3 x 6
BVTT 3 x 6
Supplied with a variable resistor
Printed Circuit Board, EQ amp
Printed Circuit Board, flat amp
Holder, pushbutton switches
Sub-chassis
1-226-215-00 Ⓒ
Resistor, variable; 100 kΩ/100 kΩ; BALANCE (RV201, 251)
1-552-359-00 Ⓔ
Switch, push-button; FUNCTION (S1)
Printed Circuit Board, volume
BVTT 3 x 6
1-552-374-00 Ⓔ
Switch, rotary slide; FILTER (S4)
BVTT 3 x 6
Supplied with a jack
1-518-115-XX Ⓑ
Lamp, PHONO/TUNER/AUX (PL801–803)
4-854-231-00 Ⓐ
Stopper, variable resistor
Supplied with a switch
BVTT 3 x 6
3-534-276-00 Ⓐ
Holder, lamp
BVTT 3 x 6
Supplied with a variable resistor
9-911-815-01 Ⓑ
Cushion, t = 3
1-520-320-00 Ⓚ
Meter, power (ME101)
Supplied with a variable resistor
BVTT 3 x 6
9-911-815-01 Ⓑ
Cushion, t = 3
1-520-320-00 Ⓚ
Meter, power (ME151)

Note:

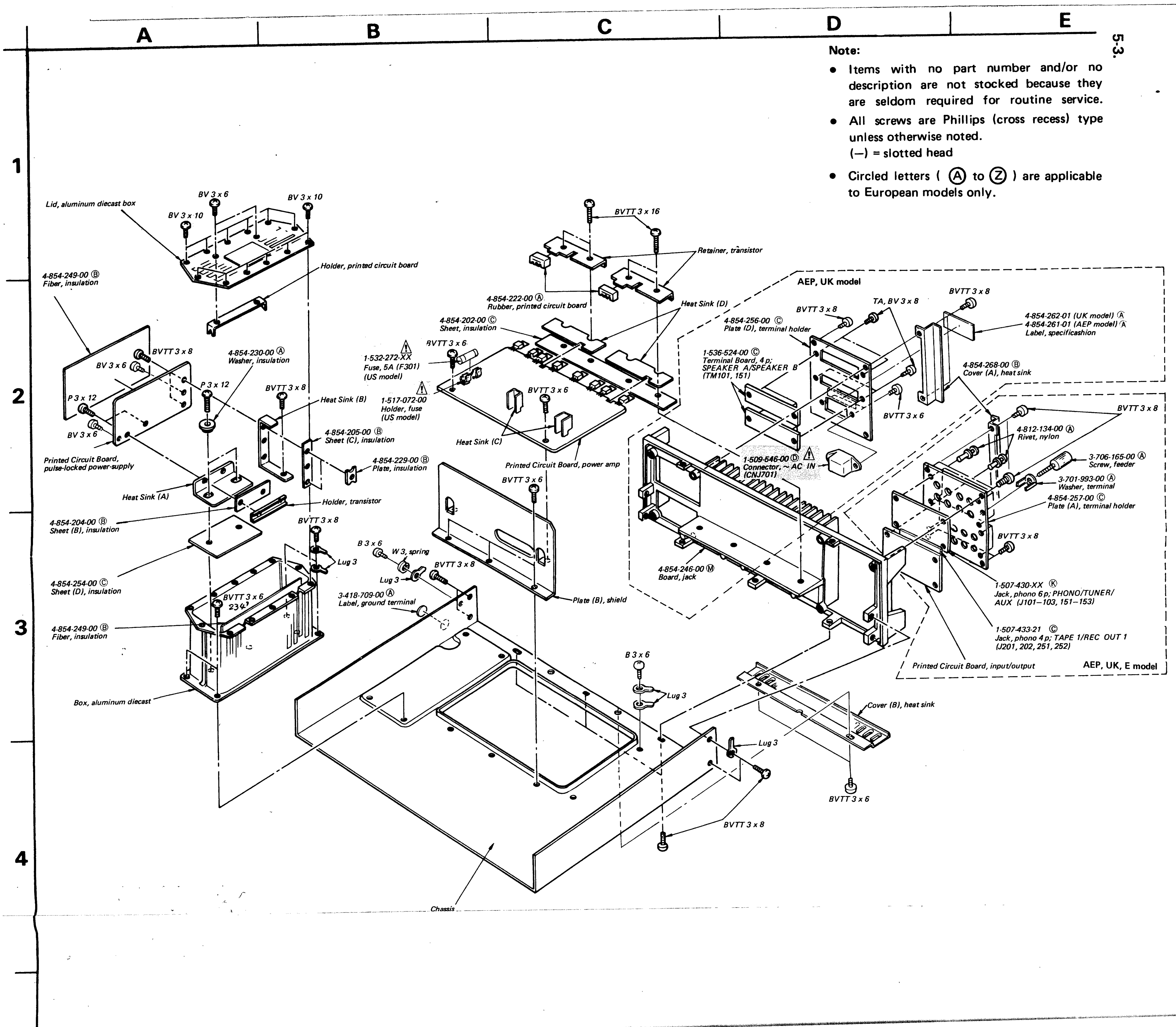
- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

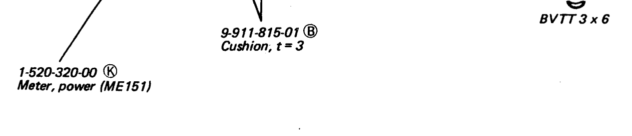
Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

5-3.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (–) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.


A
B
C
D
E
1
2
3
4
Lid, aluminum diecast box
BV 3 x 6
BV 3 x 10
BV 3 x 10
Holder, printed circuit board
4-854-249-00 Ⓑ
Fiber, insulation
BVTT 3 x 8
BV 3 x 6
P 3 x 12
BV 3 x 6
4-854-230-00 Ⓐ
Washer, insulation
P 3 x 12
BVTT 3 x 8
Heat Sink (B)
4-854-205-00 Ⓑ
Sheet (C), insulation
4-854-229-00 Ⓑ
Plate, insulation
Printed Circuit Board, pulse-locked power-supply
Heat Sink (A)
Holder, transistor
4-854-204-00 Ⓑ
Sheet (B), insulation
BVTT 3 x 8
Lug 3
4-854-254-00 Ⓒ
Sheet (D), insulation
BVTT 3 x 6
4-854-249-00 Ⓑ
Fiber, insulation
Box, aluminum diecast
B 3 x 6
W 3, spring
Lug 3
BVTT 3 x 8
3-418-709-00 Ⓐ
Label, ground terminal
BVTT 3 x 16
Retainer, transistor
4-854-222-00 Ⓐ
Rubber, printed circuit board
4-854-202-00 Ⓒ
Sheet, insulation
Heat Sink (D)
BVTT 3 x 6
1-532-272-XX
Fuse, 5A (F301) (US model)
1-517-072-00
Holder, fuse (US model)
BVTT 3 x 6
Heat Sink (C)
Printed Circuit Board, power amp
BVTT 3 x 6
Plate (B), shield
AEP, UK model
BVTT 3 x 8
TA, BV 3 x 8
BVTT 3 x 8
4-854-256-00 Ⓒ
Plate (D), terminal holder
1-536-524-00 Ⓒ
Terminal Board, 4 p; SPEAKER A/SPEAKER B (TM101, 151)
4-854-262-01 (UK model) Ⓐ
4-854-261-01 (AEP model) Ⓐ
Label, specificashion
4-854-268-00 Ⓑ
Cover (A), heat sink
BVTT 3 x 6
BVTT 3 x 8
4-812-134-00 Ⓐ
Rivet, nylon
1-509-546-00 Ⓓ
Connector, ~ AC IN (CNJ701)
3-706-165-00 Ⓐ
Screw, feeder
3-701-993-00 Ⓐ
Washer, terminal
4-854-257-00 Ⓒ
Plate (A), terminal holder
BVTT 3 x 8
4-854-246-00 Ⓜ
Board, jack
1-507-430-XX Ⓚ
Jack, phono 6 p; PHONO/TUNER/AUX (J101–103, 151–153)
1-507-433-21 Ⓒ
Jack, phono 4 p; TAPE 1/REC OUT 1 (J201, 202, 251, 252)
Printed Circuit Board, input/output
AEP, UK, E model
B 3 x 6
Lug 3
Cover (B), heat sink
Lug 3
BVTT 3 x 6
BVTT 3 x 8
Chassis

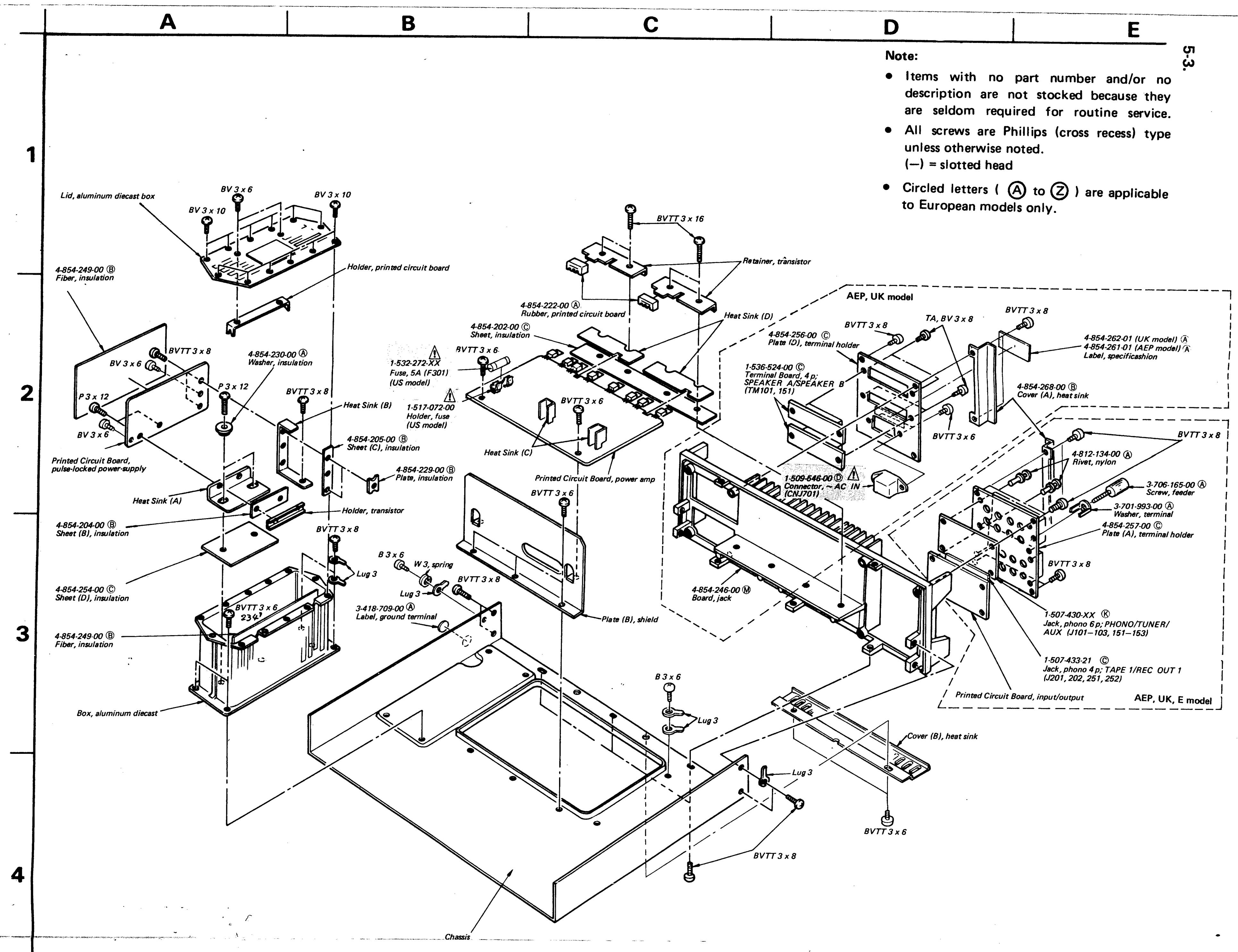

1-520-320-00 Ⓚ
Meter, power (ME151)
9-911-815-01 Ⓑ
Cushion, t = 3
BVTT 3 x 6

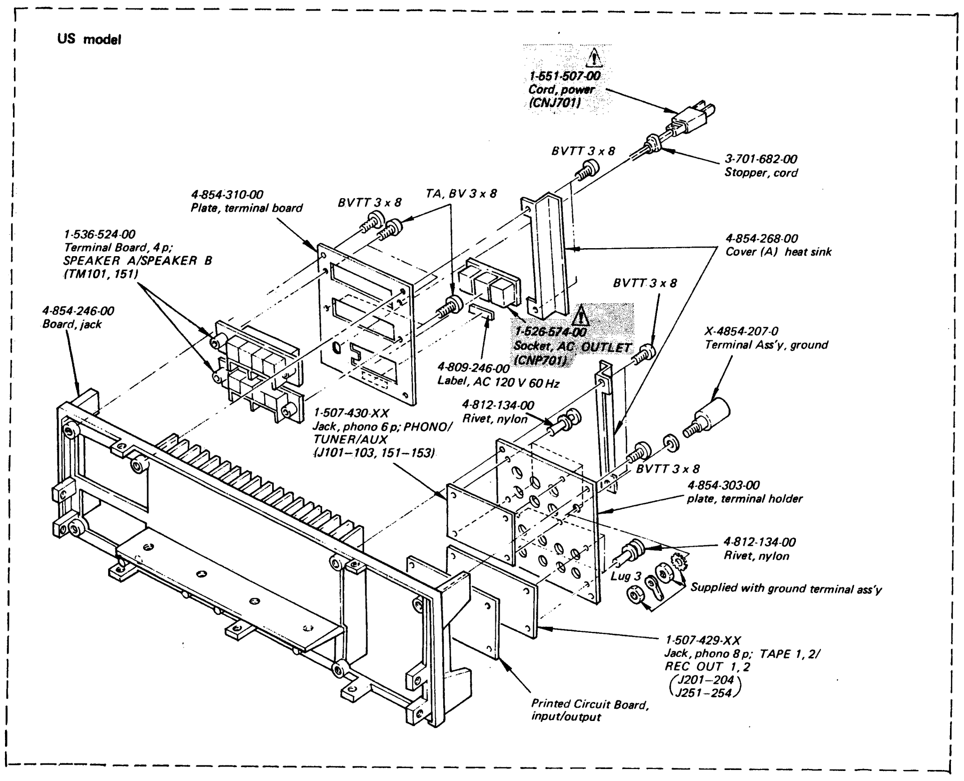
part number specified.

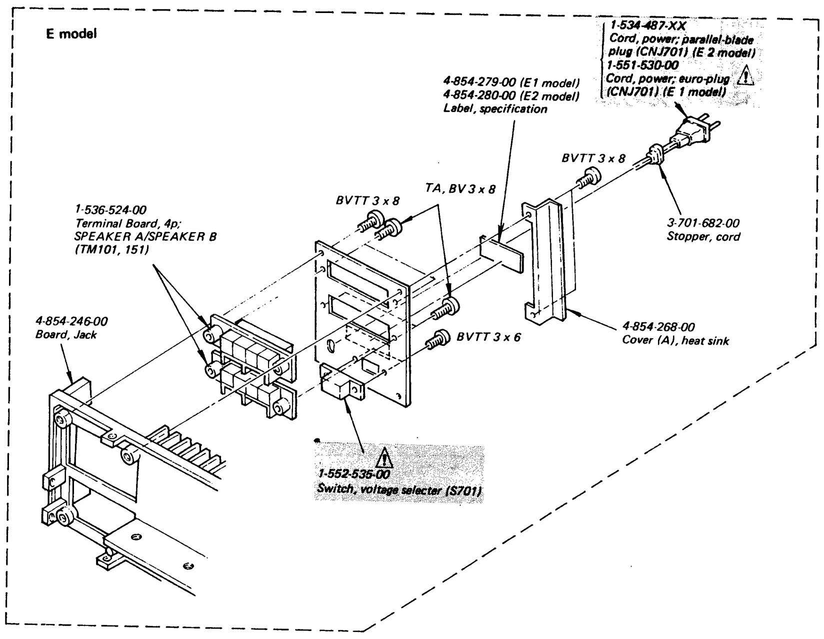
5-3.

Note:

- Items with no part number and/or no description are not stocked because they are seldom required for routine service.
- All screws are Phillips (cross recess) type unless otherwise noted.
  (−) = slotted head
- Circled letters (Ⓐ to Ⓩ) are applicable to European models only.


A
B
C
D
E
1
2
3
4
Lid, aluminum diecast box
BV 3 x 6
BV 3 x 10
BV 3 x 10
Holder, printed circuit board
4-854-249-00 Ⓑ
Fiber, insulation
BVTT 3 x 8
BV 3 x 6
4-854-230-00 Ⓐ
Washer, insulation
P 3 x 12
P 3 x 12
BV 3 x 6
BVTT 3 x 8
Heat Sink (B)
Printed Circuit Board,
pulse-locked power-supply
4-854-205-00 Ⓑ
Sheet (C), insulation
4-854-229-00 Ⓑ
Plate, insulation
Heat Sink (A)
Holder, transistor
4-854-204-00 Ⓑ
Sheet (B), insulation
BVTT 3 x 8
Lug 3
4-854-254-00 Ⓒ
Sheet (D), insulation
BVTT 3 x 6
4-854-249-00 Ⓑ
Fiber, insulation
Box, aluminum diecast
BVTT 3 x 16
Retainer, transistor
4-854-222-00 Ⓐ
Rubber, printed circuit board
Heat Sink (D)
4-854-202-00 Ⓒ
Sheet, insulation
⚠ 1-532-272-XX
Fuse, 5A (F301)
(US model)
BVTT 3 x 6
⚠ 1-517-072-00
Holder, fuse
(US model)
BVTT 3 x 6
Heat Sink (C)
Printed Circuit Board, power amp
BVTT 3 x 6
B 3 x 6
W 3, spring
Lug 3
BVTT 3 x 8
3-418-709-00 Ⓐ
Label, ground terminal
Plate (B), shield
B 3 x 6
Lug 3
Lug 3
BVTT 3 x 8
Cover (B), heat sink
BVTT 3 x 6
Chassis
AEP, UK model
BVTT 3 x 8
TA, BV 3 x 8
BVTT 3 x 8
4-854-256-00 Ⓒ
Plate (D), terminal holder
4-854-262-01 (UK model) Ⓐ
4-854-261-01 (AEP model) Ⓐ
Label, specificashion
1-536-524-00 Ⓒ
Terminal Board, 4 p;
SPEAKER A/SPEAKER B
(TM101, 151)
4-854-268-00 Ⓑ
Cover (A), heat sink
BVTT 3 x 6
1-509-546-00 Ⓓ ⚠
Connector, ~ AC IN
(CNJ701)
BVTT 3 x 8
4-812-134-00 Ⓐ
Rivet, nylon
3-706-165-00 Ⓐ
Screw, feeder
3-701-993-00 Ⓐ
Washer, terminal
4-854-257-00 Ⓒ
Plate (A), terminal holder
BVTT 3 x 8
4-854-246-00 Ⓜ
Board, jack
1-507-430-XX Ⓚ
Jack, phono 6 p; PHONO/TUNER/
AUX (J101–103, 151–153)
1-507-433-21 Ⓒ
Jack, phono 4 p; TAPE 1/REC OUT 1
(J201, 202, 251, 252)
Printed Circuit Board, input/output
AEP, UK, E model


5
6
7
US model
⚠ 1-551-507-00
Cord, power
(CNJ701)
BVTT 3 x 8
3-701-682-00
Stopper, cord
4-854-310-00
Plate, terminal board
BVTT 3 x 8
TA, BV 3 x 8
1-536-524-00
Terminal Board, 4 p;
SPEAKER A/SPEAKER B
(TM101, 151)
4-854-268-00
Cover (A) heat sink
BVTT 3 x 8
4-854-246-00
Board, jack
⚠ 1-526-574-00
Socket, AC OUTLET
(CNP701)
X-4854-207-0
Terminal Ass'y, ground
4-809-246-00
Label, AC 120 V 60 Hz
4-812-134-00
Rivet, nylon
1-507-430-XX
Jack, phono 6 p; PHONO/
TUNER/AUX
(J101–103, 151–153)
BVTT 3 x 8
4-854-303-00
plate, terminal holder
4-812-134-00
Rivet, nylon
Lug 3
Supplied with ground terminal ass'y
1-507-429-XX
Jack, phono 8 p; TAPE 1, 2/
REC OUT 1, 2
(J201–204
J251–254)
Printed Circuit Board,
input/output


E model
1-534-487-XX
Cord, power; parallel-blade
plug (CNJ701) (E 2 model)
1-551-530-00
Cord, power; euro-plug ⚠
(CNJ701) (E 1 model)
4-854-279-00 (E1 model)
4-854-280-00 (E2 model)
Label, specification
BVTT 3 x 8
TA, BV 3 x 8
BVTT 3 x 8
3-701-682-00
Stopper, cord
1-536-524-00
Terminal Board, 4p;
SPEAKER A/SPEAKER B
(TM101, 151)
4-854-246-00
Board, Jack
BVTT 3 x 6
4-854-268-00
Cover (A), heat sink
⚠ 1-552-535-00
Switch, voltage selecter (S701)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

SECTION 6

ELECTRICAL PARTS LIST

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

SEMICONDUCTORS

Transistors

Ref. No.	Part No.	Description
⇒ Q101, 151	8-761-700-00	Ⓑ 2SC1637-O
⇒ Q102, 152	8-729-387-27	Ⓑ 2SA872D
⇒ Q103, 153	8-765-082-20	Ⓒ 2SA896
⇒ Q104, 154	8-729-663-47	Ⓑ 2SC1364
⇒ Q201, 202	8-729-663-47	Ⓑ 2SC1364
⇒ Q203	8-729-307-62	Ⓓ 2SD476A
Q204	8-729-203-04	Ⓑ 2SK30A
⇒ Q251, 252	8-727-788-00	Ⓑ 2SA678
⇒ Q253	8-729-306-62	Ⓔ 2SB566A
Q254	8-729-203-04	Ⓑ 2SK30A
⇒ Q301, 351	8-729-663-47	Ⓑ 2SC1364
⇒ Q302, 352	8-727-788-00	Ⓑ 2SA678
Q303, 353	8-729-377-12	Ⓔ 2SA771
⇒ Q304, 354	8-729-308-62	Ⓔ 2SC1986C-O
⇒ Q305, 355	8-727-788-00	Ⓑ 2SA678
⇒ Q306–308	8-729-663-47	Ⓑ 2SC1364
⇒ Q309	8-727-788-00	Ⓑ 2SA678
⇒ Q310, 311	8-729-663-47	Ⓑ 2SC1364
Q312	8-729-377-12	Ⓔ 2SA771
⇒ Q313	8-729-308-62	Ⓔ 2SC1986C-O
⇒ Q356, 357	8-729-663-47	Ⓑ 2SC1364
Q362	8-729-377-12	Ⓔ 2SA771
⇒ Q363	8-729-308-62	Ⓔ 2SC1986C-O
⇒ Q501	8-727-788-00	Ⓑ 2SA678
⇒ Q502	8-729-663-47	Ⓑ 2SC1364
⇒ Q503–506	(8-729-302-31 8-729-302-32	Ⓓ 2SC2023-R Ⓓ 2SC2023-O) (AEP, UK, E model)
⇒ Q503–506	8-729-308-62	2SC1986C-O (US model)

Diodes

Ref. No.	Part No.	Description
D101, 151	8-719-912-00	Ⓑ MV12N
⇒ D102	8-719-931-06	Ⓑ EQB01-06
⇒ D201	8-719-931-30	Ⓑ EQB01-30
⇒ D202, 251	8-719-931-25	Ⓑ EQB01-25
⇒ D252	8-719-931-28	Ⓑ EQB01-28
D253	8-719-200-02	Ⓑ 10E2
D301, 351 D302, 352	8-719-912-00	Ⓑ NV12N
D303, 353 D304, 354	8-719-923-76	Ⓑ 1S2076A
⇒ D305, 355	8-719-422-21	Ⓐ 1T22AM
D306, 356	8-719-815-55	Ⓑ 1S1555
D307	8-719-920-30	Ⓑ MV203V
D308	8-719-815-55	Ⓑ 1S1555
D309–312	8-719-911-55	Ⓑ U05G
D313, 363	8-719-815-55	Ⓑ 1S1555
⇒ D401, 451 D402, 452	8-719-422-21	Ⓐ 1T22AM
D501, 502	8-719-815-55	Ⓑ 1S1555
D503–506	8-719-303-41	Ⓒ S34

⇒: Due to standardization, interchangeable replacements may be substituted for parts specified in the diagrams.

ICs

Ref. No.	Part No.	Description
IC201, 251	8-759-314-57	Ⓒ HA1457
IC301, 351	8-751-710-00	Ⓖ CX171

COILS

Ref. No.	Part No.	Description
L101, 151	1-407-165-XX	Ⓐ 47 μH, microinductor
L501	1-421-340-00	Ⓔ Line Filter (AEP, UK, E model)
L501	1-421-328-11	Line Filter (US model)
L502–506	1-421-329-00	Ⓑ 10 μH, choke

TRANSFORMERS

Ref. No.	Part No.	Description
T501	1-433-197-11	Ⓕ OSC
T503	⚠1-446-012-11	Ⓚ Converter (AEP, E1 model)
T503	⚠1-446-024-00	Converter (E2 model)
T503	⚠1-446-090-00	Converter (US model)
T504	1-543-129-00	Ⓐ Core

CAPACITORS

All capacitors are in μF and ceramic unless otherwise noted.
50 WV or less are not indicated except for electrolytics.
pF = μμF, elect = electrolytic

Ref. No.	Part No.	Description		
C101	1-121-651-11	Ⓐ 10	16 V	elect
C102	1-102-973-11	Ⓐ 100 p		
C103	1-121-424-11	Ⓑ 470	6.3 V	elect

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	Part No.	Description		
C104	1-108-576-12	Ⓐ 0.0075		mylar
C105	1-108-589-12	Ⓐ 0.027		mylar
C106	1-102-973-11	Ⓐ 100 p		
C107	1-121-419-11	Ⓑ 220	6.3 V	elect
C108, 109	1-121-395-11	Ⓐ 4.7	25 V	elect
C110	1-108-561-12	Ⓐ 0.0018		mylar
C111	1-123-063-11	Ⓑ 220	35 V	elect
C112	1-123-062-11	Ⓑ 100	35 V	elect
C113	1-108-251-11	Ⓑ 0.1		mylar
C114	1-123-197-11	Ⓐ 100	6.3 V	elect
C151	1-121-651-11	Ⓐ 10	16 V	elect
C152	1-102-973-11	Ⓐ 100 p		
C153	1-121-424-11	Ⓑ 470	6.3 V	elect
C154	1-108-576-12	Ⓐ 0.0075		mylar
C155	1-108-589-12	Ⓐ 0.027		mylar
C156	1-102-973-11	Ⓐ 100 p		
C157	1-121-419-11	Ⓑ 220	6.3 V	elect
C158, 159	1-121-395-11	Ⓐ 4.7	25 V	elect
C160	1-108-561-12	Ⓐ 0.0018		mylar
C163	1-108-251-12	Ⓑ 0.1		mylar
C201	1-121-391-11	Ⓐ 1	50 V	elect
C202	1-102-945-11	Ⓐ 8 p		
C203	1-102-943-11	Ⓐ 6 p		
C204	1-102-938-11	Ⓐ 1 p		
C205	1-121-352-11	Ⓐ 47	10 V	elect
C206	1-104-074-11	Ⓐ 750 p		polystyrol
C207	1-108-581-12	Ⓐ 0.012		mylar
C208	1-121-450-11	Ⓐ 2.2	50 V	elect
C209	1-108-585-12	Ⓐ 0.018		mylar
C210	1-108-605-12	Ⓑ 0.12		mylar
C211	1-108-567-12	Ⓐ 0.0033		mylar
C212	1-102-976-11	Ⓐ 180 p		
C213	1-108-611-12	Ⓑ 0.22		mylar
C214	1-121-395-11	Ⓐ 4.7	25 V	elect
C215	1-123-182-11	Ⓐ 4.7	50 V	elect
C216	1-121-936-11	Ⓑ 220	25 V	elect
C217, 218	1-121-410-11	Ⓑ 47	25 V	elect
C219	1-121-396-11	Ⓐ 4.7	50 V	elect
C220	1-121-944-11	Ⓔ 1000	16 V	elect
C221	1-121-655-11	Ⓑ 330	35 V	elect
C251	1-121-391-11	Ⓐ 1	50 V	elect
C252	1-102-945-11	Ⓐ 8 p		
C253	1-102-943-11	Ⓐ 6 p		
C254	1-102-938-11	Ⓐ 1 p		
C255	1-121-352-11	Ⓐ 47	10 V	elect
C256	1-104-074-11	Ⓐ 750 p		polystyrol
C257	1-108-581-12	Ⓐ 0.012		mylar
C258	1-121-450-11	Ⓐ 2.2	50 V	elect
C259	1-108-585-12	Ⓐ 0.018		mylar
C260	1-108-605-12	Ⓑ 0.12		mylar
C261	1-108-567-12	Ⓐ 0.0033		mylar
C262	1-102-976-11	Ⓐ 180 p		
C263	1-108-611-12	Ⓑ 0.22		mylar
C264	1-121-395-11	Ⓐ 4.7	25 V	elect
C265	1-123-182-11	Ⓐ 4.7	50 V	elect
C266	1-121-936-11	Ⓑ 220	25 V	elect
C267, 268	1-121-410-11	Ⓑ 47	25 V	elect
C269	1-121-396-11	Ⓐ 4.7	50 V	elect
C270	1-123-059-11	Ⓑ 100	50 V	elect
C301	1-121-726-11	Ⓐ 0.47	50 V	elect
C302	1-121-352-11	Ⓐ 47	10 V	elect
C303	1-102-973-11	Ⓐ 100 p		
C304	1-121-726-11	Ⓐ 0.47	50 V	elect
C305	1-106-196-11	Ⓐ 0.01	100 V	mylar
C306	1-108-591-12	Ⓐ 0.033		mylar
C307	1-123-197-11	Ⓐ 100	6.3 V	elect
C308	1-108-567-12	Ⓐ 0.0033		mylay
C309	1-121-419-11	Ⓑ 220	6.3 V	elect
C310	1-121-413-11	Ⓐ 100	6.3 V	elect
C311, 312	1-123-061-11	1000	50 V	elect (US model)
C311, 312	1-123-256-11	Ⓓ 2200	50 V	elect (AEP, UK, E model)
C313	1-123-291-11	Ⓖ 680	200 V	elect (AEP, UK, E model)
C313	1-125-180-11	1200	200 V	elect (US model)
C314	1-123-291-11	Ⓖ 680	200 V	elect (AEP, UK, E model)

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*		
C104	1-108-576-12	Ⓐ 0.0075		mylar
C105	1-108-589-12	Ⓐ 0.027		mylar
C106	1-102-973-11	Ⓐ 100 p		
C107	1-121-419-11	Ⓑ 220	6.3 V	elect
C108, 109	1-121-395-11	Ⓐ 4.7	25 V	elect
C110	1-108-561-12	Ⓐ 0.0018		mylar
C111	1-123-063-11	Ⓑ 220	35 V	elect
C112	1-123-062-11	Ⓑ 100	35 V	elect
C113	1-108-251-11	Ⓑ 0.1		mylar
C114	1-123-197-11	Ⓐ 100	6.3 V	elect
C151	1-121-651-11	Ⓐ 10	16 V	elect
C152	1-102-973-11	Ⓐ 100 p		
C153	1-121-424-11	Ⓑ 470	6.3 V	elect
C154	1-108-576-12	Ⓐ 0.0075		mylar
C155	1-108-589-12	Ⓐ 0.027		mylar
C156	1-102-973-11	Ⓐ 100 p		
C157	1-121-419-11	Ⓑ 220	6.3 V	elect
C158, 159	1-121-395-11	Ⓐ 4.7	25 V	elect
C160	1-108-561-12	Ⓐ 0.0018		mylar
C163	1-108-251-12	Ⓑ 0.1		mylar
C201	1-121-391-11	Ⓐ 1	50 V	elect
C202	1-102-945-11	Ⓐ 8 p		
C203	1-102-943-11	Ⓐ 6 p		
C204	1-102-938-11	Ⓐ 1 p		
C205	1-121-352-11	Ⓐ 47	10 V	elect
C206	1-104-074-11	Ⓐ 750 p		polystyrol
C207	1-108-581-12	Ⓐ 0.012		mylar
C208	1-121-450-11	Ⓐ 2.2	50 V	elect
C209	1-108-585-12	Ⓐ 0.018		mylar
C210	1-108-605-12	Ⓑ 0.12		mylar
C211	1-108-567-12	Ⓐ 0.0033		mylar
C212	1-102-976-11	Ⓐ 180 p		
C213	1-108-611-12	Ⓑ 0.22		mylar
C214	1-121-395-11	Ⓐ 4.7	25 V	elect
C215	1-123-182-11	Ⓐ 4.7	50 V	elect
C216	1-121-936-11	Ⓑ 220	25 V	elect
C217, 218	1-121-410-11	Ⓑ 47	25 V	elect
C219	1-121-396-11	Ⓐ 4.7	50 V	elect
C220	1-121-944-11	Ⓔ 1000	16 V	elect
C221	1-121-655-11	Ⓑ 330	35 V	elect
C251	1-121-391-11	Ⓐ 1	50 V	elect
C252	1-102-945-11	Ⓐ 8 p		
C253	1-102-943-11	Ⓐ 6 p		
C254	1-102-938-11	Ⓐ 1 p		
C255	1-121-352-11	Ⓐ 47	10 V	elect
C256	1-104-074-11	Ⓐ 750 p		polystyrol
C257	1-108-581-12	Ⓐ 0.012		mylar
C258	1-121-450-11	Ⓐ 2.2	50 V	elect
C259	1-108-585-12	Ⓐ 0.018		mylar
C260	1-108-605-12	Ⓑ 0.12		mylar
C261	1-108-567-12	Ⓐ 0.0033		mylar
C262	1-102-976-11	Ⓐ 180 p		
C263	1-108-611-12	Ⓑ 0.22		mylar
C264	1-121-395-11	Ⓐ 4.7	25 V	elect
C265	1-123-182-11	Ⓐ 4.7	50 V	elect
C266	1-121-936-11	Ⓑ 220	25 V	elect
C267, 268	1-121-410-11	Ⓑ 47	25 V	elect
C269	1-121-396-11	Ⓐ 4.7	50 V	elect
C270	1-123-059-11	Ⓑ 100	50 V	elect
C301	1-121-726-11	Ⓐ 0.47	50 V	elect
C302	1-121-352-11	Ⓐ 47	10 V	elect
C303	1-102-973-11	Ⓐ 100 p		
C304	1-121-726-11	Ⓐ 0.47	50 V	elect
C305	1-106-196-11	Ⓐ 0.01	100 V	mylar
C306	1-108-591-12	Ⓐ 0.033		mylar
C307	1-123-197-11	Ⓐ 100	6.3 V	elect
C308	1-108-567-12	Ⓐ 0.0033		mylay
C309	1-121-419-11	Ⓑ 220	6.3 V	elect
C310	1-121-413-11	Ⓐ 100	6.3 V	elect
C311, 312	1-123-061-11	1000	50 V	elect (US model)
C311, 312	1-123-256-11	Ⓓ 2200	50 V	elect (AEP, UK, E model)
C313	1-123-291-11	Ⓖ 680	200 V	elect (AEP, UK, E model)
C313	1-125-180-11	1200	200 V	elect (US model)
C314	1-123-291-11	Ⓖ 680	200 V	elect (AEP, UK, E model)

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*		
C315	1-123-068-11	Ⓑ 220	16 V	elect
C316	1-121-393-11	Ⓐ 3.3	50 V	elect
C317	1-108-749-12	Ⓑ 0.047	300 V	mylar (AEP, UK, E model)
C351	1-121-726-11	Ⓐ 0.47	50 V	elect
C352	1-121-352-11	Ⓐ 47	10 V	elect
C353	1-102-973-11	Ⓐ 100 p		
C354	1-121-726-11	Ⓐ 0.47	50 V	elect
C355	1-106-196-11	Ⓐ 0.01	100 V	mylar
C356	1-108-591-12	Ⓐ 0.033		mylar
C357	1-123-197-11	Ⓐ 100	6.3 V	elect
C358	1-108-567-12	Ⓐ 0.0033		mylar
C364	1-108-579-12	Ⓐ 0.01		mylar
C365	1-123-068-11	Ⓑ 220	16 V	elect
C401	1-121-450-11	Ⓐ 2.2	50 V	elect
C402	1-121-479-11	Ⓐ 22	16 V	elect
C403	1-108-591-12	Ⓐ 0.033		mylar
C451	1-121-450-11	Ⓐ 2.2	50 V	elect
C452	1-121-479-11	Ⓐ 22	16 V	elect
C453	1-108-591-12	Ⓐ 0.033		mylar
C501	1-130-141-11	Ⓐ 0.01	630 V	polyethylene
C502, 503	⚠ 1-115-149-11	Ⓒ 0.0015	450 V	paper (AEP, UK, E model)
C502, 503	⚠ 1-102-070-11	0.001	150 V	ceramic (US model)
C504	1-123-402-11	Ⓒ 22	400 V	elect (AEP, UK, E model)
C504	1-125-176-11	22	200 V	elect (US model)
C505	1-108-595-12	Ⓐ 0.047		mylar
C506	1-108-599-12	Ⓑ 0.068		mylar
C507	1-130-141-11	Ⓐ 0.01	630 V	polyethylene
C508, 509	1-121-656-11	Ⓑ 330	50 V	elect
C510, 511	1-121-417-11	Ⓑ 100	50 V	elect
C512, 513	1-108-969-11	Ⓐ 0.22	250 V	mylar (AEP, UK, E model)
C512, 513	1-130-083-11	1	100 V	polyethylene (US model)
C514	1-102-973-11	Ⓐ 100 p		
C601	⚠ 1-115-149-11	Ⓒ 0.0015	450 V	paper (AEP, UK, E model)
C602	1-108-749-12	Ⓒ 0.047	300 V	mylar (AEP, UK, E model)

RESISTORS

All resistors are in ohms. Common ¼ W carbon resistors are omitted. Refer to the list on page 42 for their part numbers.

R121	⚠ 1-206-662-11	Ⓐ 820	2 W	metal oxide (nonflammable)
R220	⚠ 1-212-889-11	Ⓐ 220	¼ W	fusible (nonflammable)
R223	⚠ 1-206-706-11	Ⓑ 160	3 W	metal oxide (nonflammable)
R224	⚠ 1-212-978-11	Ⓑ 68	½ W	fusible (nonflammable)
R227	⚠ 1-212-958-11	Ⓐ 10	½ W	fusible (nonflammable)
R228	⚠ 1-212-978-11	Ⓑ 68	½ W	fusible (nonflammable)
R270	⚠ 1-212-889-11	Ⓐ 220	¼ W	fusible (nonflammable)
R275	⚠ 1-212-857-11	Ⓐ 10	¼ W	fusible (nonflammable)
R309, 310	⚠ 1-121-988-11	Ⓑ 180	½ W	fusible (nonflammable)
R312	1-244-885-11	Ⓐ 3.3 k	½ W	carbon
R316, 317	1-217-152-11	Ⓐ 0.33	2 W	wirewound
R322	⚠ 1-211-502-11	Ⓑ 15	¼ W	carbon (nonflammable)
R325	1-244-883-11	Ⓐ 2.7 k	½ W	carbon
R335	⚠ 1-206-654-11	Ⓐ 390	2 W	metal oxide (nonflammable)
R336	1-244-874-11	Ⓐ 1.1 k	½ W	carbon
R337–339	⚠ 1-213-131-11	100	1 W	metal oxide (nonflammable) (US model)
R340, 341	1-217-152-11	Ⓐ 0.33	2 W	wirewound

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*
R359, 360	⚠1-121-988-11	Ⓑ 180 ½W fusible (nonflammable)
R362	1-244-885-11	Ⓐ 3.3 k ½W carbon
R366, 367	1-217-152-11	Ⓐ 0.33 2 W wirewound
R372	⚠1-211-502-11	Ⓑ 15 ¼W carbon (nonflammable)
R375	1-244-883-11	Ⓐ 2.7 k ½W carbon
R390, 391	1-217-152-11	Ⓐ 0.33 2 W wirewound
R401	1-244-825-11	Ⓐ 10 ½W carbon
R402	1-244-877-11	Ⓐ 1.5 k ½W carbon
R403	1-244-873-11	Ⓐ 1 k ½W carbon
R404	1-244-825-11	Ⓐ 10 ½W carbon
R405	1-244-865-11	Ⓐ 470 ½W carbon
R451	1-244-825-11	Ⓐ 10 ½W carbon
R452	1-244-877-11	Ⓐ 1.5 k ½W carbon
R453	1-244-873-11	Ⓐ 1 k ½W carbon
R454	1-244-825-11	Ⓐ 10 ½W carbon
R455	1-244-865-11	Ⓐ 470 ½W carbon
R502	1-214-166-11	27 k ¼W metal oxide (US model)
R502	1-214-167-11	Ⓐ 30 k ¼W metal oxide (AEP, UK, E model)
R503	1-214-128-11	Ⓐ 680 ¼W metal oxide
R504	1-214-142-11	Ⓐ 2.7 k ¼W metal oxide
R506	⚠1-212-369-11	Ⓑ 5.6 1 W metal oxide (nonflammable)
R507–510	⚠1-121-356-11	Ⓑ 0.47 1 W metal oxide (nonflammable)
R601–602	⚠1-206-644-00	Ⓐ 150 2 W metal oxide (nonflammable) (AEP, UK, E model)
RT301	1-224-251-XX	Ⓒ 4.7 k, adjustable; DC BALANCE
RT302	1-224-254-XX	Ⓒ 47 k, adjustable; DC BIAS
RT351	1-224-251-XX	Ⓒ 4.7 k, adjustable; DC BALANCE
RT352	1-224-254-XX	Ⓒ 47 k, adjustable; DC BIAS
RT401	1-221-997-00	Ⓑ 2.2 k, adjustable; METER LEVEL
RT451	1-221-997-00	Ⓑ 2.2 k, adjustable; METER LEVEL
RV201, 251	1-226-215-00	Ⓒ 100 k/100 k, variable; BALANCE
RV202/252 RV205/255	1-526-574-00	Ⓗ 100 k/100 k/10 k/10 k, variable; VOLUME
RV203, 253	1-226-211-00	Ⓓ 100 k/100 k, variable; TREBLE
RV204, 254	1-226-212-00	Ⓓ 100 k/100 k, variable; BASS

SWITCHES

S1	1-552-359-00	Ⓔ Pushbutton; FUNCTION
S2	1-552-373-11	Ⓔ Rotary Slide; MONITOR
S3	1-552-373-11	Ⓔ Rotary Slide; TAPE COPY
S4	1-552-374-00	Ⓔ Rotary Slide; FILTER
S5	1-552-372-00	Ⓔ Rotary Slide; SPEAKERS
S6	⚠1-552-206-11	Ⓓ Pushbutton; POWER (AEP, UK, E model)
S6	⚠1-552-018-00	Pushbutton; POWER (US model)
S701	⚠1-552-535-00	Voltage Selector (E model)

JACKS

J101–103 J151–153	1-507-430-XX	Ⓚ Phono, 6 p; PHONE, TUNER, AUX
J201, 202 J251, 252	1-507-429-XX	Phono, 8 p; TAPE 1/2, REC OUT 1/2 (US model)
J201, 202 J251, 252	1-507-433-21	Ⓒ Phono, 4 p; TAPE 1, REC OUT 1 (AEP, UK, E model)
J203, 204 J253, 254	1-507-429-XX	Phono, 8 p; TAPE 2, REC OUT 2 (US model)
J401	1-507-561-00	Ⓒ HEADPHONES

MISCELLANEOUS

CNJ201	1-509-549-00	Ⓑ Connector, REC/PB (AEP, UK, E model)
CNJ701	⚠1-551-507-00	Cord, power (US model)
CNJ701	⚠1-509-546-00	Ⓒ Connector, ~AC IN (AEP, UK model)
CNJ701	⚠1-534-487-XX	Cord, power; parallel-blade plug (E2 model)
CNJ701	⚠1-551-530-00	Cord, power; euro-plug (E1 model)
CNP701	⚠1-517-072-00	Socket, AC OUTLET (US model)
CP701	⚠1-231-326-11	Encapsulated Component (US model)
F301	⚠1-532-272-XX	Fuse, 5 A (US model)
F601	⚠1-532-286-00	Ⓑ Fuse, T 2.5 A (AEP, UK, E model)
F602	⚠1-532-299-00	Ⓑ Fuse, T 5 A (AEP, UK, E model)

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

Note: Circled letters (Ⓐ to Ⓩ) are applicable to European models only.

Ref. No.	*Part No.*	*Description*
ME101, 151	1-520-320-00	Ⓚ Meter, power
PL801	1-518-115-XX	Ⓑ Lamp; PHONO
PL802	1-518-115-XX	Ⓑ Lamp; TUNER
PL803	1-518-115-XX	Ⓑ Lamp; AUX
RY301	1-515-302-00	Ⓕ Relay
RY302	1-515-278-00	Relay (US model)
RY601	1-515-278-00	Ⓕ Relay (AEP, UK, E model)
TM101, 151	1-536-524-00	Ⓒ Terminal Board, 4 p; SPEAKER A/B
	⚠1-517-072-00	Holder, fuse (US model)
	⚠1-533-131-00	Ⓐ Holder, fuse (AEP, UK, E model)

ACCESSORY AND PACKING MATERIALS

Part No.	*Description*
1-534-819-00	Ⓖ Cord, power (UK model)
3-701-020-00	Ⓐ Bag, check sheet
3-770-456-11	Ⓔ Manual, instruction (AEP, UK, E model)
3-770-456-21	Manual, instruction (US model)
3-794-340-11	Ⓓ Manual, instruction; Dutch and Swedish
4-809-251-00	Ⓐ Bag, plastic
4-854-273-00	Ⓑ Cushion
4-854-275-00	Ⓔ Carton

Note: The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

1/4 WATT CARBON RESISTORS Ⓐ

Note: Circled letter Ⓐ is applicable to European models only.

Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*	Ω	*Part No.*
1.0	1-244-601-11	10	1-244-625-11	100	1-244-649-11	1.0k	1-244-673-11	10k	1-244-697-11	100k	1-244-721-11	1.0M	1-244-745-11
1.1	1-244-602-11	11	1-244-626-11	110	1-244-650-11	1.1k	1-244-674-11	11k	1-244-698-11	110k	1-244-722-11	1.1M	1-244-746-11
1.2	1-244-603-11	12	1-244-627-11	120	1-244-651-11	1.2k	1-244-675-11	12k	1-244-699-11	120k	1-244-723-11	1.2M	1-244-747-11
1.3	1-244-604-11	13	1-244-628-11	130	1-244-652-11	1.3k	1-244-676-11	13k	1-244-700-11	130k	1-244-724-11	1.3M	1-244-748-11
1.5	1-244-605-11	15	1-244-629-11	150	1-244-653-11	1.5k	1-244-677-11	15k	1-244-701-11	150k	1-244-725-11	1.5M	1-244-749-11
1.6	1-244-606-11	16	1-244-630-11	160	1-244-654-11	1.6k	1-244-678-11	16k	1-244-702-11	160k	1-244-726-11	1.6M	1-244-750-11
1.8	1-244-607-11	18	1-244-631-11	180	1-244-655-11	1.8k	1-244-679-11	18k	1-244-703-11	180k	1-244-737-11	1.8M	1-244-751-11
2.0	1-244-608-11	20	1-244-632-11	200	1-244-656-11	2.0k	1-244-680-11	20k	1-244-704-11	200k	1-244-728-11	2.0M	1-244-752-11
2.2	1-244-609-11	22	1-244-633-11	220	1-244-657-11	2.2k	1-244-681-11	22k	1-244-705-11	220k	1-244-729-11	2.2M	1-244-753-11
2.4	1-244-610-11	24	1-244-634-11	240	1-244-658-11	2.4k	1-244-682-11	24k	1-244-706-11	240k	1-244-730-11	2.4M	1-244-754-11
2.7	1-244-611-11	27	1-244-635-11	270	1-244-659-11	2.7k	1-244-683-11	27k	1-244-707-11	270k	1-244-731-11	2.7M	1-244-755-11
3.0	1-244-612-11	30	1-244-636-11	300	1-244-660-11	3.0k	1-244-684-11	30k	1-244-708-11	300k	1-244-732-11	3.0M	1-244-756-11
3.3	1-244-613-11	33	1-244-637-11	330	1-244-661-11	3.3k	1-244-685-11	33k	1-244-709-11	330k	1-244-733-11	3.3M	1-244-757-11
3.6	1-244-614-11	36	1-244-638-11	360	1-244-662-11	3.6k	1-244-686-11	36k	1-244-710-11	360k	1-244-734-11	3.6M	1-244-758-11
3.9	1-244-615-11	39	1-244-639-11	390	1-244-663-11	3.9k	1-244-687-11	39k	1-244-711-11	390k	1-244-735-11	3.9M	1-244-759-11
4.3	1-244-616-11	43	1-244-640-11	430	1-244-664-11	4.3k	1-244-688-11	43k	1-244-712-11	430k	1-244-736-11	4.3M	1-244-760-11
4.7	1-244-617-11	47	1-244-641-11	470	1-244-665-11	4.7k	1-244-689-11	47k	1-244-713-11	470k	1-244-737-11	4.7M	1-244-761-11
5.1	1-244-618-11	51	1-244-642-11	510	1-244-666-11	5.1k	1-244-690-11	51k	1-244-714-11	510k	1-244-738-11	5.1M	1-244-762-11
5.6	1-244-619-11	56	1-244-643-11	560	1-244-667-11	5.6k	1-244-691-11	56k	1-244-715-11	560k	1-244-739-11		
6.2	1-244-620-11	62	1-244-644 11	620	1-244-668-11	6.2k	1-244-692-11	62k	1-244-716-11	620k	1-244-740-11		
6.8	1-244-621-11	68	1-244-645-11	680	1-244-669-11	6.8k	1-244-693-11	68k	1-244-717-11	680k	1-244-741-11		
7.5	1-244-622-11	75	1-244-646-11	750	1-244-670-11	7.5k	1-244-694-11	75k	1-244-718-11	750k	1-244-742-11		
8.2	1-244-623-11	82	1-244-647-11	820	1-244-671-11	8.2k	1-244-695-11	82k	1-244-719-11	820k	1-244-743-11		
9.1	1-244-624-11	91	1-244-648-11	910	1-244-672-11	9.1k	1-244-696-11	91k	1-244-720-11	910k	1-244-744-11		

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